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1949 - May, 1951



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PREFACE

The Preface to the Index of NACA Technical Publications, 1915-1949, mentioned that regular supplements would be issued in the future. This is the first such Supplement and covers those documents issued through May of 1951. Similar arrangement is used in both Indexes. First, there is a classified listing of the subject categories; second, a chronological listing of NACA publications under each subject category; third, an alphabetical index to the subject categories; and finally, an author index. The latter feature was not included in the basic 1915-1949 Index but has been issued separately and is available upon request. Immediately following this Preface is an Explanatory Chart of NACA Publications Series Designations which may be of use in identifying references to NACA documents encountered in the literature.

For those maintaining a file of NACA index cards, it is recommended that cards issued for reports dated prior to June 1, 1951, be removed from the file as this volume includes the same index information.

NACA documents issued since June 1, 1951, have been listed in NACA Research Abstracts, a new announcement service which also includes notices of declassification of NACA documents and listings of unpublished NACA documents available on loan.

Division of Research Information
National Advisory Committee for Aeronautics
1724 F Street, N. W.
Washington 25, D. C.

April 23, 1952

EXPLANATORY CHART OF NACA PUBLICATIONS SERIES
DESIGNATIONS

PUBLICATIONS SERIES	SYMBOL	CURRENTLY ISSUED	NUMBERED CONSECU- TIVELY	NUMBER BASED ON LABORATORY** OF ORIGIN	NUMBER BASED ON DATE OF ISSUE- YEAR* MONTH# DAY##	EXAMPLE WITH EXPLANATION
Reports	None	Yes	Yes	No	No	Report 1004 - 1004th Report issued.
Research Memorandums	RM	Yes	No	Yes	Yes	RM L9K03a - Research Memorandum written by Langley Laboratory Personnel in 1949 and issued on November 3rd, being the second RM released on that date.
Technical Memorandums	TM	Yes	Yes	No	No	TM 1313 - 1313th Technical Memorandum issued.
Technical Notes	TN	Yes	Yes	No	No	TN 2432 - 2432nd Technical Note issued.
Wartime Reports	WR	No	Yes	Yes	No	WR A-6 - 6th Wartime Report issued that was based on Ames Laboratory research. Reported earlier to a limited audience and was reprinted.
Adv. Conf. Reports	ACR	No	No	Yes, after March, 1944##	Yes, after April, 1943##	ACR E4D19 - Advance Confidential Report written by Lewis Laboratory personnel in 1944 and issued on April 19h.
Adv. Rest'd Reports	ARR	No	No	Yes, after March, 1944##	Yes, after April, 1943##	ARR L4K?2b - Advance Restricted Report written by Langley Laboratory personnel in 1944 and issued on November 22nd, being the 3rd ARR issued on that date.
Conf. Bulletins	CB	No	No	Yes, after March, 1944##	Yes, after April, 1943##	CB E5J11 - Confidential Bulletin written by Lewis Laboratory personnel in 1945 and issued October 11th.
Memorandum Reports	MR	No	No	Yes, after October, 1944##	Yes, after October, 1944##	MR A4L12 - Memorandum Report written by Ames Laboratory personnel in 1944 and issued on December 12th.
Restricted Bulletins	RB	No	No	Yes, after March, 1944##	Yes, after April, 1943##	RB L5F15 - Restricted Bulletin written by Lewis Laboratory personnel in 1945 and issued on June 15th.
Aircraft Circulars	AC	No	Yes	No	No	AC 150 - 150th Aircraft Circular issued.

Symbol and date only
used prior to date
mentioned.

** A - Ames	* 5 - 1945	50 - 1950	A - January	G - July	## 01
E - Lewis	6 - 1946	51 - 1951	B - February	H - August	02
L - Langley	7 - 1947	52 - 1952	C - March	I - September	03 . . etc. to 31 followed by
	8 - 1948		D - April	J - October	a - 2nd document issued that date
	9 - 1949		E - May	K - November	b - 3rd document issued that date
			F - June	L - December	

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AERODYNAMICS

(1)

Fundamental (1.1)

Heaslet, Max. A. and Lomax, Harvard:
The Use of Source-Sink and Doublet
Distributions Extended to the Solu-
tion of Arbitrary Boundary Value
Problems in Supersonic Flow.
Rept. 900, 1948.

Eggers, A. J., Jr.: One-Dimensional
Flows of an Imperfect Diatomic Gas.
Rept. 959, 1950.

Heaslet, Max. A. and Lomax, Harvard:
The Application of Green's Theorem
to the Solution of Boundary-Value
Problems in Linearized Supersonic
Wing Theory. Rept. 961, 1950.

Brown, Clinton E.: The Reversibility
Theorem for Thin Airfoils in Sub-
sonic and Supersonic Flow. Rept.
986, 1950.

Allen, H. Julian: Pressure Distribution
and Some Effects of Viscosity on
Slender Inclined Bodies of Revolution.
TN 2044, March 1950.

Neihouse, Anshal I. and Pepoon,
Philip W.: Dynamic Similitude be-
tween a Model and a Full-Scale
Body for Model Investigation at
Full-Scale Mach Number. TN 2062,
March 1950.

Sanger, Eugen: The Gas Kinetics of Very
High Flight Speeds. TM 1270, May
1950.

Perl, William: Calculation of Transonic
Flows past Thin Airfoils by an Inte-
gral Method. TN 2130, July 1950.

Martin, John C.: The Calculation of
Downwash behind Wings of Arbitrary
Plan Forms at Supersonic Speeds.
TN 2135, July 1950.

Jones, Robert T.: The Spanwise Distri-
bution of Lift for Minimum Induced
Drag of Wings Having a Given Lift
and a Given Bending Moment.
TN 2249, December 1950.

Van Dyke, Milton D.: A Study of Second-
Order Supersonic-Flow Theory.
TN 2200, January 1951.

INCOMPRESSIBLE FLOW (1.1.1)

Katzoff, S.; Finn, Robert S.; and
Laurence, James C.: Interference
Method for Obtaining the Potential
Flow past an Arbitrary Cascade of
Airfoils. Rept. 879, 1947.

Quick, August Wilhelm and Schröder, K.:
Behavior of the Laminar Boundary
Layer for Periodically Oscillating
Pressure Variation. TM 1228,
September 1949.

Sanders, John C. and Brightwell,
Virginia L.: Analysis of Ejector
Thrust by Integration of Calculated
Surface Pressures. TN 1958,
October 1949.

Westphal, Willard R. and Dunavant,
James C.: Application of the Wire-
Mesh Plotting Device to Incompress-
sible Cascade Flows. TN 2095,
May 1950.

Hansen, Arthur G. and Yohner, Peggy L.:
A Numerical Procedure for Design-
ing Cascade Blades with Prescribed
Velocity Distribution in Incompress-
sible Flow. TN 2101, June 1950.

Barmby, J. G.; Cunningham, H. J.; and
Garrick, I. E.: Study of Effects of
Sweep on the Flutter of Cantilever
Wings. TN 2121, June 1950.

COMPRESSIBLE FLOW (1.1.2)

- Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. Rept. 876, 1947.
- Spurr, Robert A. and Allen, H. Julian: A Theory of Unstaggered Airfoil Cascades in Compressible Flow. Rept. 888, 1947.
- Liepmann, Hans W. and Fila, Gertrude H.: Investigations of Effects of Surface Temperature and Single Roughness Elements on Boundary-Layer Transition. Rept. 890, 1947.
- Matthews, Clarence W.: A Comparison of the Experimental Subsonic Pressure Distributions about Several Bodies of Revolution with Pressure Distributions Computed by Means of the Linearized Theory. RM L9F28, September 1949.
- Callaghan, Edmund E. and Bowden, Dean T.: Investigation of Flow Coefficient of Circular, Square, and Elliptical Orifices at High Pressure Ratios. TN 1947, September 1949.
- Sanders, John C. and Brightwell, Virginia L.: Analysis of Ejector Thrust by Integration of Calculated Surface Pressures. TN 1958, October 1949.
- Schafer, Manfred and Tollmien, W.: Two-Dimensional Potential Flows. TM 1243, November 1949.
- Schafer, Manfred and Tollmien, W.: Rotationally Symmetric Potential Flows. TM 1244, November 1949.
- Heaslet, Max. A.; Lomax, Harvard; and Spreiter, John R.: Linearized Compressible-Flow Theory for Sonic Flight Speeds. Rept. 956, 1950.
- Chapman, Dean R.: Laminar Mixing of a Compressible Fluid. Rept. 958, 1950.
- Heaslet, Max. A. and Lomax, Harvard: The Application of Green's Theorem to the Solution of Boundary-Value Problems in Linearized Supersonic Wing Theory. Rept. 961, 1950.
- Spreiter, John R.: The Aerodynamic Forces on Slender Plane- and Cruciform-Wing and Body Combinations. Rept. 962, 1950.
- Tucker, Maurice: Approximate Turbulent Boundary-Layer Development in Plane Compressible Flow along Thermally Insulated Surfaces with Application to Supersonic-Tunnel Contour Correction. TN 2045, March 1950.
- Sibulkin, Merwin and Koffel, William K.: Chart for Simplifying Calculation of Pressure Drop of a High-Speed Compressible Fluid under Simultaneous Action of Friction and Heat Transfer - Application to Combustion-Chamber Cooling Passages. TN 2067, March 1950.
- Frankl, F. I.: On the Formation of Shock Waves in Subsonic Flows with Local Supersonic Velocities. TM 1251, April 1950.
- Kiebel, I. A.: Some Studies on the Flow of a Gas in the Region of Transition through the Velocity of Sound. TM 1252, April 1950.
- Kiebel, I. A.: Exact Solutions of Equations of Gas Dynamics. TM 1260, June 1950.
- Soule, Harold V. and Sabol, Alexander P.: Development and Preliminary Investigation of a Method of Obtaining Hypersonic Aerodynamic Data by Firing Models through Highly Cooled Gases. TN 2120, July 1950.
- Perl, William: Calculation of Transonic Flows past Thin Airfoils by an Integral Method. TN 2130, July 1950.
- Kaplan, Carl: On the Particular Integrals of the Prandtl-Busemann Iteration Equations for the Flow of a Compressible Fluid. TN 2159, August 1950.
- Hamrick, Joseph T.; Ginsburg, Ambrose; and Osborn, Walter M.: Method of Analysis for Compressible Flow through Mixed-Flow Centrifugal Impellers of Arbitrary Design. TN 2165, August 1950.

Compressible Flow (Cont.)

- Pinkel, Benjamin; Noyes, Robert N.; and Valerino, Michael F.: Method for Determining Pressure Drop of Air Flowing through Constant-Area Passages for Arbitrary Heat-Input Distributions. TN 2186, September 1950.
- Spooner, Robert B.: Effect of Heat-Capacity Lag on a Variety of Turbine-Nozzle Flow Processes. TN 2193, October 1950.
- Ivey, H. Reese and Cline, Charles W.: Effect of Heat-Capacity Lag on the Flow through Oblique Shock Waves. TN 2196, October 1950.
- Lieblein, Seymour and Sandercock, Donald M.: Compressibility Correction for Turning Angles of Axial-Flow Inlet Guide Vanes. TN 2215, December 1950.
- Stalder, Jackson R.; Goodwin, Glen; and Creager, Marcus O.: A Comparison of Theory and Experiment for High-Speed Free-Molecule Flow. TN 2244, December 1950.
- Lomax, Harvard; Heaslet, Max. A.; and Fuller, Franklyn B.: Three-Dimensional, Unsteady-Lift Problems in High-Speed Flight - Basic Concepts. TN 2256, December 1950.
- Wang, Chi-Teh: Two-Dimensional Subsonic Compressible Flows past Arbitrary Bodies by the Variational Method. TN 2326, March 1951.
- Tucker, Maurice and Maslen, Stephen H.: Turbulent Boundary-Layer Temperature Recovery Factors in Two-Dimensional Supersonic Flow. TN 2296, February 1951.
- Moore, Franklin K.: Three-Dimensional Compressible Laminar Boundary-Layer Flow. TN 2279, March 1951.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.
- Tucker, Maurice: Approximate Calculation of Turbulent Boundary-Layer Development in Compressible Flow. TN 2337, April 1951.
- Valerino, M. F. and Doyle, R. B.: Method for Determining Pressure Drop of Monatomic Gases Flowing in Turbulent Motion through Constant-Area Passages with Simultaneous Friction and Heat Addition. TN 2328, April 1951.
- Karpovich, E. A. and Frankl, F. I.: Resistance of a Delta Wing in a Supersonic Flow. TM 1283, April 1951.
- Bugaenko, G. A.: On the Problem of Gas Flow over an Infinite Cascade Using Chaplygin's Approximation. TM 1298, May 1951.
- Kuo, Yung-Huai: Two-Dimensional Transonic Flow past Airfoils. TN 2356, May 1951.
- Shu, S. S.: On Two-Dimensional Flow after a Curved Stationary Shock (with Special Reference to the Problem of Detached Shock Waves). TN 2364, May 1951.
- Sinnette, John T., Jr. and Costello, George R.: Possible Application of Blade Boundary-Layer Control to Improvement of Design and Off-Design Performance of Axial-Flow Turbomachines. TN 2371, May 1951.

SUBSONIC FLOW/
(1.1.2.1)

- Kaplan, Carl: On Similarity Rules for Transonic Flows. Rept. 894, 1948.
- Sinnette, John T., Jr.: Some Methods of Analyzing the Effect of Basic Design Variables on Axial-Flow Compressor Performance. Rept. 901, 1948.
- Jones, Robert T.: Subsonic Flow over Thin Oblique Airfoils at Zero Lift. Rept. 902, 1948.

Subsonic Flow - Compressible (Cont.)

- Matthews, Clarence W.: A Comparison of the Experimental Subsonic Pressure Distributions about Several Bodies of Revolution with Pressure Distributions Computed by Means of the Linearized Theory. RM L9F28, September 1949.
- Costello, George R.: Method of Designing Cascade Blades with Prescribed Velocity Distributions in Compressible Potential Flows. Rept. 978, 1950.
- Herriot, John G.: Blockage Corrections for Three-Dimensional-Flow Closed-Throat Wind Tunnels, with Consideration of the Effect of Compressibility. Rept. 995, 1950.
- Reissner, Eric: On the Theory of Oscillating Airfoils of Finite Span in Subsonic Compressible Flow. Rept. 1002, 1950.
- Bers, Lipman: Velocity Distribution on Wing Sections of Arbitrary Shape in Compressible Potential Flow. III - Circulatory Flows Obeying the Simplified Density-Speed Relation. TN 2056, March 1950.
- Gelbart, Abe and Resch, Daniel: A Method of Computing Subsonic Flows around Given Airfoils. TN 2057, March 1950.
- Sibulkin, Merwin and Koffel, William K.: Chart for Simplifying Calculation of Pressure Drop of a High-Speed Compressible Fluid under Simultaneous Action of Friction and Heat Transfer - Application to Combustion-Chamber Cooling Passages. TN 2067, March 1950.
- Loewner, Charles: A Transformation Theory of the Partial Differential Equations of Gas Dynamics. TN 2065, April 1950.
- Roy, Maurice: Theoretical Investigations on the Efficiency and the Conditions for the Realization of Jet Engines. TM 1259, June 1950.
- Perl, William: Calculation of Transonic Flows past Thin Airfoils by an Integral Method. TN 2130, July 1950.
- DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.
- Christianovich, S. A. and Yuriev, I. M.: Subsonic Gas Flow past a Wing Profile. TM 1250, July 1950.
- Kaplan, Carl: On the Particular Integrals of the Prandtl-Busemann Iteration Equations for the Flow of a Compressible Fluid. TN 2159, August 1950.
- Amick, James L.: Comparison of the Experimental Pressure Distribution on an NACA 0012 Profile at High Speeds with That Calculated by the Relaxation Method. TN 2174, August 1950.
- Lindsey, Walter F. and Chew, William L.: The Development and Performance of Two Small Tunnels Capable of Intermittent Operation at Mach Numbers between 0.4 and 4.0. TN 2189, September 1950.
- Furlong, G. Chester and Fitzpatrick, James E.: Effects of Mach Number up to 0.34 and Reynolds Number up to 8×10^6 on the Maximum Lift Coefficient of a Wing of NACA 66-Series Airfoil Sections. TN 2251, December 1950.
- Harder, Keith C. and Klunker, E. B.: On a Source-Sink Method for the Solution of the Prandtl-Busemann Iteration Equations in Two-Dimensional Compressible Flow. TN 2253, December 1950.
- DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.
- Reissner, Eric: Extension of the Theory of Oscillating Airfoils of Finite Span in Subsonic Compressible Flow. TN 2274, February 1951.
- Costello, George R.; Cummings, Robert L.; and Sinnette, John T., Jr.: Detailed Computational Procedure for Design of Cascade Blades with Prescribed Velocity Distributions in Compressible Potential Flows. TN 2281, February 1951.

Subsonic Flow - Compressible (Cont.)

- Harmon, Sidney M.: Correspondence Flows for Wings in Linearized Potential Fields at Subsonic and Supersonic Speeds. TN 2303, March 1951.
- Harmon, Sidney M.: Method for Calculating Downwash Field Due to Lifting Surfaces at Subsonic and Supersonic Speeds. TN 2344, April 1951.
- Klunker, E. B. and Harder, Keith C.: On the Second-Order Tunnel-Wall-Constriction Corrections in Two-Dimensional Compressible Flow. TN 2350, April 1951.
- Reissner, Eric: On the Application of Mathieu Functions in the Theory of Subsonic Compressible Flow past Oscillating Airfoils. TN 2363, May 1951.
- Kaplan, Carl: On a Solution of the Non-linear Differential Equation for Transonic Flow past a Wave-Shaped Wall. TN 2383, June 1951.

MIXED FLOW
(1.1.2.2)

- Orlin, W. James; Lindner, Norman J.; and Bitterly, Jack G.: Application of the Analogy between Water Flow with a Free Surface and Two-Dimensional Compressible Gas Flow. Rept. 875, 1947.
- Kaplan, Carl: On Similarity Rules for Transonic Flows. Rept. 894, 1948.
- Zaloveik, John A. and Luke, Ernest P.: Some Flight Measurements of Pressure-Distribution and Boundary-Layer Characteristics in the Presence of Shock. RM L8C22, July 1948.
- Stack, John and Lindsey, W. F.: Characteristics of Low-Aspect-Ratio Wings at Supercritical Mach Numbers. Rept. 922, 1949.

- Matthews, Clarence W.: A Comparison of the Experimental Subsonic Pressure Distributions about Several Bodies of Revolution with Pressure Distributions Computed by Means of the Linearized Theory. RM L9F28, September 1949.
- Heberle, Juergen W.; Wood, George P.; and Gooderum, Paul B.: Data on Shape and Location of Detached Shock Waves on Cones and Spheres. TN 2000, January 1950.
- Frankl, F. I.: On the Formation of Shock Waves in Subsonic Flows with Local Supersonic Velocities. TM 1251, April 1950.
- Kiebel, I. A.: Some Studies on the Flow of a Gas in the Region of Transition through the Velocity of Sound. TM 1252, April 1950.
- Bers, Lipman: On the Continuation of a Potential Gas Flow across the Sonic Line. TN 2058, April 1950.
- Loewner, Charles: A Transformation Theory of the Partial Differential Equations of Gas Dynamics. TN 2065, April 1950.
- Kiebel, I. A.: Exact Solutions of Equations of Gas Dynamics. TM 1260, June 1950.
- Perl, William: Calculation of Transonic Flows past Thin Airfoils by an Integral Method. TN 2130, July 1950.
- Gooderum, Paul B. and Wood, George P.: Density Fields around a Sphere at Mach Numbers 1.30 and 1.62. TN 2173, August 1950.
- Amick, James L.: Comparison of the Experimental Pressure Distribution on an NACA 0012 Profile at High Speeds with that Calculated by the Relaxation Method. TN 2174, August 1950.
- Perl, W. and Klein, Milton M.: Theoretical Verification and Application of Transonic Similarity Law for Two-Dimensional Flow. TN 2191, October 1950.

Mixed Flow - Compressible (Cont.)

- Cohen, C. B. and Valerino, A. S.: Investigation of Operating Pressure Ratio of a Supersonic Wind Tunnel Utilizing Distributed Boundary-Layer Suction in Test Section. RM E50H04, November 1950.
- Szablewski, W.: The Diffusion of a Hot Air Jet in Air in Motion. TM 1288, December 1950.
- Perl, W. and Klein, Milton M.: Theoretical Investigation of Transonic Similarity for Bodies of Revolution. TN 2239, December 1950.
- Klein, Milton M. and Perl, W.: Calculation of Compressible Potential Flow past Slender Bodies of Revolution by an Integral Method. TN 2245, December 1950.
- Spreiter, John R.: Similarity Laws for Transonic Flow about Wings of Finite Span. TN 2273, January 1951.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.
- Vincenti, Walter G. and Wagoner, Cleo B.: Transonic Flow past a Wedge Profile with Detached Bow Wave - General Analytical Method and Final Calculated Results. TN 2339, April 1951.
- Shu, S. S.: On Two-Dimensional Flow after a Curved Stationary Shock (with Special Reference to the Problem of Detached Shock Waves). TN 2364, May 1951.
- Kaplan, Carl: On a Solution of the Non-linear Differential Equation for Transonic Flow past a Wave-Shaped Wall. TN 2383, June 1951.
- SUPERSONIC FLOW**
(1.1.2.3)
- Garrick, I. E. and Rubinow, S. I.: Theoretical Study of Air Forces on an Oscillating or Steady Thin Wing in a Supersonic Main Stream. Rept. 872, 1947.
- Heaslet, Max. A.; Lomax, Harvard; and Jones, Arthur L.: Volterra's Solution of the Wave Equation as Applied to Three-Dimensional Supersonic Airfoil Problems. Rept. 889, 1947.
- Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at a Mach Number of 1.5. RM A7A31a, April 1947.
- Heaslet, Max. A. and Lomax, Harvard: The Use of Source-Sink and Doublet Distributions Extended to the Solution of Arbitrary Boundary Value Problems in Supersonic Flow. Rept. 900, 1948.
- Pinkel, I. Irving: Equations for the Design of Two-Dimensional Supersonic Nozzles. Rept. 907, 1948.
- Ribner, Herbert S. and Malvestuto, Frank S., Jr.: Stability Derivatives of Triangular Wings at Supersonic Speeds. Rept. 908, 1948.
- Ritter, William K. and Johnsen, Irving A.: Performance of 24-Inch Supersonic Axial-Flow Compressor in Air. I - Performance of Compressor Rotor at Design Tip Speed of 1600 Feet per Second. RM E7L10, May 1948.
- Czarnecki, K. R. and Schueller, C. F.: Investigation of Interaction Effects Arising from Side-Wall Boundary Layers in Supersonic Wind-Tunnel Tests of Airfoils. RM L8G27, November 1948.
- Heaslet, Max. A. and Lomax, Harvard: Two-Dimensional Unsteady Lift Problems in Supersonic Flight. Rept. 945, 1949.
- Tollmien, W.: Theory of Characteristics. TM 1242, September 1949.
- Harmon, Sidney M.: Theoretical Relations between the Stability Derivatives of a Wing in Direct and in Reverse Supersonic Flow. TN 1943, September 1949.

Supersonic Flow - Compressible (Cont.)

Falkovich, S. V.: Two-Dimensional Motion of a Gas at Large Supersonic Velocities. TM 1239, October 1949.

Gurevich, M. I.: Lift Force of an Arrow-Shaped Wing. TM 1245, October 1949.

Schäfer, Manfred and Tollmien, W.: Two-Dimensional Potential Flows. TM 1243, November 1949.

Schäfer, Manfred and Tollmien, W.: Rotationally Symmetric Potential Flows. TM 1244, November 1949.

Evvard, John C.: Use of Source Distributions for Evaluating Theoretical Aerodynamics of Thin Finite Wings at Supersonic Speeds. Rept. 951, 1950.

Gooderum, Paul B.; Wood, George P.; and Brevoort, Maurice J.: Investigation with an Interferometer of the Turbulent Mixing of a Free Supersonic Jet. Rept. 963, 1950.

Kantrowitz, Arthur: The Supersonic Axial-Flow Compressor. Rept. 974, 1950.

Mirels, Harold and Haefeli, Rudolph C.: Line-Vortex Theory for Calculation of Supersonic Downwash. Rept. 983, 1950.

Lagerstrom, P. A.: Linearized Supersonic Theory of Conical Wings. TN 1685, January 1950.

Heberle, Juergen W.; Wood, George P.; and Gooderum, Paul B.: Data on Shape and Location of Detached Shock Waves on Cones and Spheres. TN 2000, January 1950.

Moskowitz, Barry and Moeckel, W. E.: First-Order Theory for Unsteady Motion of Thin Wings at Supersonic Speeds. TN 2034, February 1950.

Ribner, Herbert S.: Time-Dependent Downwash at the Tail and the Pitching Moment Due to Normal Acceleration at Supersonic Speeds. TN 2042, February 1950.

Huckel, Vera and Durling, Barbara J.: Tables of Wing-Aileron Coefficients of Oscillating Air Forces for Two-Dimensional Supersonic Flow. TN 2055, March 1950.

Haskind, M. D. and Falkovich, S. V.: Vibration of a Wing of Finite Span in a Supersonic Flow. TM 1257, April 1950.

Bidwell, Jerold M.: Analysis of an Induction Blowdown Supersonic Tunnel. TN 2040, April 1950.

Loewner, Charles: A Transformation Theory of the Partial Differential Equations of Gas Dynamics. TN 2065, April 1950.

Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.

Vincenti, Walter G.: Comparison between Theory and Experiment for Wings at Supersonic Speeds. TN 2100, June 1950.

Jack, John R.: Theoretical Wave Drags and Pressure Distributions for Axially Symmetric Open-Nose Bodies. TN 2115, June 1950.

Moore, Franklin: Linearized Supersonic Axially Symmetric Flow about Open-Nosed Bodies Obtained by Use of Stream Function. TN 2116, June 1950.

Noyes, Robert N.: Prandtl-Meyer Flow for a Diatomic Gas of Variable Specific Heat. TN 2125, June 1950.

Martin, John C.: The Calculation of Downwash behind Wings of Arbitrary Plan Form at Supersonic Speeds. TN 2135, July 1950.

Chapman, Dean R.: An Analysis of Base Pressure at Supersonic Velocities and Comparison with Experiment. TN 2137, July 1950.

Supersonic Flow - Compressible (Cont.)

- Haefeli, Rudolph C.; Mirels, Harold; and Cummings, John L.: Charts for Estimating Downwash behind Rectangular, Trapezoidal, and Triangular Wings at Supersonic Speeds. TN 2141, August 1950.
- Mirels, Harold: Lift-Cancellation Technique in Linearized Supersonic Wing Theory. TN 2145, August 1950.
- Ribner, Herbert S.: On the Effect of Subsonic Trailing Edges on Damping in Roll and Pitch of Thin Sweptback Wings in a Supersonic Stream. TN 2146, August 1950.
- Ribner, Herbert S.: Some Conical and Quasi-Conical Flows in Linearized Supersonic-Wing Theory. TN 2147, August 1950.
- Kaplan, Carl: On the Particular Integrals of the Prandtl-Busemann Iteration Equations for the Flow of a Compressible Fluid. TN 2159, August 1950.
- Gooderum, Paul B. and Wood, George P.: Density Fields around a Sphere at Mach Numbers 1.30 and 1.62. TN 2173, August 1950.
- Lindsey, Walter F. and Chew, William L.: The Development and Performance of Two Small Tunnels Capable of Intermittent Operation at Mach Numbers between 0.4 and 4.0. TN 2189, September 1950.
- Brinich, Paul F.: Boundary-Layer Measurements in 3.84- by 10-Inch Supersonic Channel. TN 2203, October 1950.
- Kainer, Julian H. and Marte, Jack E.: Theoretical Supersonic Characteristics of Inboard Trailing-Edge Flaps Having Arbitrary Sweep and Taper. Mach Lines behind Flap Leading and Trailing Edges. TN 2205, October 1950.
- Pinkel, I. Irving and Serafini, John S.: Graphical Method for Obtaining Flow Field in a Two-Dimensional Supersonic Stream to which Heat Is Added. TN 2206, November 1950.
- Ferri, Antonio: Supersonic Flow around Circular Cones at Angles of Attack. TN 2236, November 1950.
- Stalder, Jackson R.; Goodwin, Glen; and Creager, Marcus O.: A Comparison of Theory and Experiment for High-Speed Free-Molecule Flow. TN 2244, December 1950.
- Ehret, Dorris M.; Rossow, Vernon J.; and Stevens, Victor I.: An Analysis of the Applicability of the Hypersonic Similarity Law to the Study of Flow about Bodies of Revolution at Zero Angle of Attack. TN 2250, December 1950.
- Van Dyke, Milton D.: A Study of Second-Order Supersonic-Flow Theory. TN 2200, January 1951.
- Lampert, Seymour: Rolling and Yawing Moments for Swept-Back Wings in Sideslip at Supersonic Speeds. TN 2262, January 1951.
- Ribner, Herbert S.: Damping in Roll of Cruciform and Some Related Delta Wings at Supersonic Speeds. TN 2285, February 1951.
- Rubesin, Morris W.; Maydew, Randall C.; and Varga, Steven A.: An Analytical and Experimental Investigation of the Skin Friction of the Turbulent Boundary Layer on a Flat Plate at Supersonic Speeds. TN 2305, February 1951.
- Cooper, Morton and Webster, Robert A.: The Use of an Uncalibrated Cone for Determination of Flow Angles and Mach Numbers at Supersonic Speeds. TN 2190, March 1951.
- Harmon, Sidney M.: Correspondence Flows for Wings in Linearized Potential Fields at Subsonic and Supersonic Speeds. TN 2303, March 1951.
- Chang, Chieh-Chien: Applications of Von Kármán's Integral Method in Supersonic Wing Theory. TN 2317, March 1951.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.

Supersonic Flow - Compressible (Cont.)

Harmon, Sidney M.: Method for Calculating Downwash Field Due to Lifting Surfaces at Subsonic and Supersonic Speeds. TN 2344, April 1951.

Karpovich, E. A. and Frankl, F. I.: Resistance of a Delta Wing in a Supersonic Flow. TM 1283, April 1951.

Chang, Chieh-Chien: Transient Aerodynamic Behavior of an Airfoil Due to Different Arbitrary Modes of Non-stationary Motions in a Supersonic Flow. TN 2333, April 1951.

VISCOUS FLOW

(1.1.3)

Schubauer, G. B. and Skramstad, H. K.: Laminar-Boundary-Layer Oscillations and Transition on a Flat Plate. Rept. 909, 1948.

Kueth, A. M.; McKee, P. B.; and Curry, W. H.: Measurements in the Boundary Layer of a Yawed Wing. TN 1946, September 1949.

Allen, H. Julian: Pressure Distribution and Some Effects of Viscosity on Slender Inclined Bodies of Revolution. TN 2044, March 1950.

Sanger, Eugen: The Gas Kinetics of Very High Flight Speeds. TM 1270, May 1950.

Szablewski, W.: The Diffusion of a Hot Air Jet in Air in Motion. TM 1288, December 1950.

Furlong, G. Chester and Fitzpatrick, James E.: Effects of Mach Number up to 0.34 and Reynolds Number up to 8×10^6 on the Maximum Lift Coefficient of a Wing of NACA 66-Series Airfoil Sections. TN 2251, December 1950.

Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including Those of Rotating System. TN 2310, March 1951.

Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.

Sinnette, John T., Jr. and Costello, George R.: Possible Application of Blade Boundary-Layer Control to Improvement of Design and Off-Design Performance of Axial-Flow Turbomachines. TN 2371, May 1951.

LAMINAR FLOW

(1.1.3.1)

Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. Rept. 876, 1947.

Liepmann, Hans W. and Fila, Gertrude H.: Investigations of Effects of Surface Temperature and Single Roughness Elements on Boundary-Layer Transition. Rept. 890, 1947.

Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at a Mach Number of 1.5. RM A7A31a, April 1947.

Scherrer, Richard; Wimbrow, William R.; and Gowen, Forrest E.: Heat-Transfer and Boundary-Layer Transition on a Heated 20° Cone at a Mach Number of 1.53. RM A8L28, February 1949.

Donaldson, Coleman duP. and Sullivan, Roger D.: The Effect of Wall Friction on the Strength of Shock Waves in Tubes and Hydraulic Jumps in Channels. TN 1942, September 1949.

Quick, August Wilhelm and Schröder, K.: Behavior of the Laminar Boundary Layer for Periodically Oscillating Pressure Variation. TM 1228, September 1949.

Loftin, Laurence K., Jr. and Burrows, Dale L.: Investigations Relating to the Extension of Laminar Flow by Means of Boundary-Layer Suction through Slots. TN 1961, October 1949.

Laminar Flow - Viscous (Cont.)

- Wimbrow, William R.: Experimental Investigation of Temperature Recovery Factors on Bodies of Revolution at Supersonic Speeds. TN 1975, October 1949.
- Chapman, Dean R.: Laminar Mixing of a Compressible Fluid. Rept. 958, 1950.
- Lessen, Martin: On the Stability of the Free Laminar Boundary Layer between Parallel Streams. Rept. 979, 1950.
- Klunker, E. B. and Ivey, H. Reese: An Analysis of Supersonic Aerodynamic Heating with Continuous Fluid Injection. Rept. 990, 1950.
- Stüper: Flight Experiences and Tests on Two Airplanes with Suction Slots. TM 1232, January 1950.
- Blasius, H.: The Boundary Layers in Fluids with Little Friction. TM 1256, February 1950.
- Schlichting, H.: Amplitude Distribution and Energy Balance of Small Disturbances in Plate Flow. TM 1265, April 1950.
- Scherrer, Richard and Gowen, Forrest E.: Comparison of Theoretical and Experimental Heat Transfer on a Cooled 20° Cone with a Laminar Boundary Layer at a Mach Number of 2.02. TN 2087, May 1950.
- Braslow, Albert L. and Visconti, Fioravante: Further Experimental Studies of Area Suction for the Control of the Laminar Boundary Layer on a Porous Bronze NACA 64A010 Airfoil. TN 2112, May 1950.
- Schuh, H.: The Solution of the Laminar-Boundary-Layer Equation for the Flat Plate for Velocity and Temperature Fields for Variable Physical Properties and for the Diffusion Field at High Concentration. TM 1275, May 1950.
- Roy, Maurice: Theoretical Investigations on the Efficiency and the Conditions for the Realization of Jet Engines. TM 1259, June 1950.
- Mangler, W.: General Solution of Prandtl's Boundary-Layer Equation. TM 1278, June 1950.
- Stalder, Jackson R.; Rubesin, Morris W.; and Tendeland, Thorval: A Determination of the Laminar-, Transitional-, and Turbulent-Boundary-Layer Temperature-Recovery Factors on a Flat Plate in Supersonic Flow. TN 2077, June 1950.
- Blue, Robert E.: Interferometer Corrections and Measurements of Laminar Boundary Layer in Supersonic Stream. TN 2110, June 1950.
- Scherrer, Richard: Boundary-Layer Transition on a Cooled 20° Cone at Mach Numbers of 1.5 and 2.0. TN 2131, July 1950.
- Schlichting, H.: Turbulence and Heat Stratification. TM 1262, October 1950.
- Peterson, Robert F.: The Boundary-Layer and Stalling Characteristics of the NACA 64A010 Airfoil Section. TN 2235, November 1950.
- Stalder, Jackson R. and Slack, Ellis G.: The Use of a Luminescent Lacquer for the Visual Indication of Boundary-Layer Transition. TN 2263, January 1951.
- Moore, Franklin K.: Three-Dimensional Compressible Laminar Boundary-Layer Flow. TN 2279, March 1951.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.
- Bursnall, William J. and Loftin, Laurence K., Jr.: Experimental Investigation of Localized Regions of Laminar-Boundary-Layer Separation. TN 2338, April 1951.

Laminar Flow - Viscous (Cont.)

Higgins, Robert W. and Pappas, Constantine C.: An Experimental Investigation of the Effect of Surface Heating on Boundary-Layer Transition on a Flat Plate in Supersonic Flow. TN 2351, April 1951.

Struminsky, V. V.: Sideslip in a Viscous Compressible Gas. TM 1276, April 1951.

Borodin, V. A. and Digyakin, Y. F.: Unstable Capillary Waves on Surface of Separation of Two Viscous Fluids. TM 1281, April 1951.

Shvets, M. E.: Method of Successive Approximations for the Solution of Certain Problems in Aerodynamics. TM 1286, April 1951.

TURBULENT FLOW
(1.1.3.2)

Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at a Mach Number of 1.5. RM A7A31a, April 1947.

Zalovcik, John A. and Luke, Ernest P.: Some Flight Measurements of Pressure-Distribution and Boundary-Layer Characteristics in the Presence of Shock. RM L8C22, July 1948.

Scherrer, Richard; Wimbrow, William R.; and Gowen, Forrest E.: Heat-Transfer and Boundary-Layer Transition on a Heated 20° Cone at a Mach Number of 1.53. RM A8L28, February 1949.

Prandtl, L.: Report on Investigation of Developed Turbulence. TM 1231, September 1949.

Wimbrow, William R.: Experimental Investigation of Temperature Recovery Factors on Bodies of Revolution at Supersonic Speeds. TN 1975, October 1949.

Gooderum, Paul B.; Wood, George P.; and Brevoort, Maurice J.: Investigation with an Interferometer of the Turbulent Mixing of a Free Supersonic Jet. Rept. 963, 1950.

Schubauer, G. B.; Spangenberg, W. G.; and Klebanoff, P. S.: Aerodynamic Characteristics of Damping Screens. TN 2001, January 1950.

Tucker, Maurice: Approximate Turbulent Boundary-Layer Development in Plane Compressible Flow along Thermally Insulated Surfaces with Application to Supersonic-Tunnel Contour Correction. TN 2045, March 1950.

Schlichting, H.: Amplitude Distribution and Energy Balance of Small Disturbances in Plate Flow. TM 1265, April 1950.

Ludwig, H.: Instrument for Measuring the Wall Shearing Stress of Turbulent Boundary Layer. TM 1284, May 1950.

Ludwig, H. and Tillmann, W.: Investigations of the Wall-Shearing Stress in Turbulent Boundary Layers. TM 1285, May 1950.

Stalder, Jackson R.; Rubesin, Morris W.; and Tendeland, Thorval: A Determination of the Laminar-, Transitional-, and Turbulent-Boundary-Layer Temperature-Recovery Factors on a Flat Plate in Supersonic Flow. TN 2077, June 1950.

Laufer, John: Investigation of Turbulent Flow in a Two-Dimensional Channel. TN 2123, July 1950.

Deissler, Robert G.: Analytical and Experimental Investigation of Adiabatic Turbulent Flow in Smooth Tubes. TN 2138, July 1950.

Schubauer, G. B. and Klebanoff, P. S.: Investigation of Separation of the Turbulent Boundary Layer. TN 2133, August 1950.

Turbulent Flow - Viscous (Cont.)

- Tetervin, Neal and Lin, Chia Chiao: A General Integral Form of the Boundary-Layer Equation for Incompressible Flow with an Application to the Calculation of the Separation Point of Turbulent Boundary Layers. TN 2158, August 1950.
- Brinich, Paul F.: Boundary-Layer Measurements in 3.84- by 10-Inch Supersonic Channel. TN 2203, October 1950.
- Schlichting, H.: Turbulence and Heat Stratification. TM 1262, October 1950.
- Nikuradse, J.: Laws of Flow in Rough Pipes. TM 1292, November 1950.
- Peterson, Robert F.: The Boundary-Layer and Stalling Characteristics of the NACA 64A010 Airfoil Section. TN 2235, November 1950.
- Deissler, Robert G.: Analytical Investigation of Turbulent Flow in Smooth Tubes with Heat Transfer with Variable Fluid Properties for Prandtl Number of 1. TN 2242, December 1950.
- Tillmann, W.: Additional Measurements of the Drag of Surface Irregularities in Turbulent Boundary Layers. TM 1299, January 1951.
- Stalder, Jackson R. and Slack, Ellis G.: The Use of a Luminescent Lacquer for the Visual Indication of Boundary-Layer Transition. TN 2263, January 1951.
- Tucker, Maurice and Maslen, Stephen H.: Turbulent Boundary-Layer Temperature Recovery Factors in Two-Dimensional Supersonic Flow. TN 2296, February 1951.
- Rubesin, Morris W.; Maydew, Randall C.; and Varga, Steven A.: An Analytical and Experimental Investigation of the Skin Friction of the Turbulent Boundary Layer on a Flat Plate at Supersonic Speeds. TN 2305, February 1951.

Shvets, M. E.: Method of Successive Approximations for the Solution of Certain Problems in Aerodynamics. TM 1286, April 1951.

Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.

Tucker, Maurice: Approximate Calculation of Turbulent Boundary-Layer Development in Compressible Flow. TN 2337, April 1951.

Bursnall, William J. and Loftin, Laurence K., Jr.: Experimental Investigation of Localized Regions of Laminar-Boundary-Layer Separation. TN 2338, April 1951.

Rubesin, Morris W.: The Effect of an Arbitrary Surface-Temperature Variation along a Flat Plate on the Convective Heat Transfer in an Incompressible Turbulent Boundary Layer. TN 2345, April 1951.

Higgins, Robert W. and Pappas, Constantine C.: An Experimental Investigation of the Effect of Surface Heating on Boundary-Layer Transition on a Flat Plate in Supersonic Flow. TN 2351, April 1951.

Little, Barney H., Jr. and Wilbur, Stafford W.: Turbulence-Intensity Measurements in a Jet of Air Issuing from a Long Tube. TN 2361, May 1951.

**JET MIXING
(1.1.3.3)**

Callaghan, Edmund E. and Bowden, Dean T.: Investigation of Flow Coefficient of Circular, Square, and Elliptical Orifices at High Pressure Ratios. TN 1947, September 1949.

Prandtl, L.: Report on Investigation of Developed Turbulence. TM 1231, September 1949.

Gooderum, Paul B.; Wood, George P.; and Brevoort, Maurice J.: Investigation with an Interferometer of the Turbulent Mixing of a Free Supersonic Jet. Rept. 963, 1950.

Jet Mixing - Viscous (Cont.)

- Lessen, Martin: On the Stability of the Free Laminar Boundary Layer between Parallel Streams. Rept. 979, 1950.
- Corrsin, Stanley and Uberoi, Mahinder S.: Further Experiments on the Flow and Heat Transfer in a Heated Turbulent Air Jet. Rept. 998, 1950.
- Ruggeri, Robert S.; Callaghan, Edmund E.; and Bowden, Dean T.: Penetration of Air Jets Issuing from Circular, Square, and Elliptical Orifices Directed Perpendicularly to an Air Stream. TN 2019, February 1950.
- Corrsin, Stanley and Uberoi, Mahinder S.: Spectrums and Diffusion in a Round Turbulent Jet. TN 2124, July 1950.
- Chelko, Louis J.: Penetration of Liquid Jets into a High-Velocity Air Stream. RM E50F21, August 1950.
- Szablewski, W.: The Diffusion of a Hot Air Jet in Air in Motion. TM 1288, December 1950.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.
- Bursnall, William J. and Loftin, Laurence K., Jr.: Experimental Investigation of Localized Regions of Laminar-Boundary-Layer Separation. TN 2338, April 1951.
- Borodin, V. A. and Digyakin, Y. F.: Unstable Capillary Waves on Surface of Separation of Two Viscous Fluids. TM 1281, April 1951.
- Little, Barney H., Jr. and Wilbur, Stafford W.: Turbulence-Intensity Measurements in a Jet of Air Issuing from a Long Tube. TN 2361, May 1951.

AERODYNAMICS WITH HEAT
(1.1.4)

- Wimbrow, William R.: Experimental Investigation of Temperature Recovery Factors on Bodies of Revolution at Supersonic Speeds. TN 1975, October 1949.
- Scherrer, Richard and Gowen, Forrest E.: Comparison of Theoretical and Experimental Heat Transfer on a Cooled 20° Cone with a Laminar Boundary Layer at a Mach Number of 2.02. TN 2087, May 1950.
- Stalder, Jackson R.; Rubesin, Morris W.; and Tendeland, Thorval: A Determination of the Laminar-, Transitional-, and Turbulent-Boundary-Layer Temperature-Recovery Factors on a Flat Plate in Supersonic Flow. TN 2077, June 1950.
- Scherrer, Richard: Boundary-Layer Transition on a Cooled 20° Cone at Mach Numbers of 1.5 and 2.0. TN 2131, July 1950.
- Wimbrow, William R. and Scherrer, Richard: Laminar-Boundary-Layer Heat-Transfer Characteristics of a Body of Revolution with a Pressure Gradient at Supersonic Speeds. TN 2148, August 1950.
- Ivey, H. Reese and Cline, Charles W.: Effect of Heat-Capacity Lag on the Flow through Oblique Shock Waves. TN 2196, October 1950.
- Stalder, Jackson R.; Goodwin, Glen; and Creager, Marcus O.: A Comparison of Theory and Experiment for High-Speed Free-Molecule Flow. TN 2244, December 1950.
- Rubesin, Morris W.: The Effect of an Arbitrary Surface-Temperature Variation along a Flat Plate on the Convective Heat Transfer in an Incompressible Turbulent Boundary Layer. TN 2345, April 1951.

Aerodynamics with Heat (Cont.)

Higgins, Robert W. and Pappas, Constantine C.: An Experimental Investigation of the Effect of Surface Heating on Boundary-Layer Transition on a Flat Plate in Supersonic Flow. TN 2351, April 1951.

HEATING
(1.1.4.1)

Scherrer, Richard: The Effects of Aerodynamic Heating and Heat Transfer on the Surface Temperature of a Body of Revolution in Steady Supersonic Flight. Rept. 917, 1948.

Scherrer, Richard; Wimbrow, William R.; and Gowen, Forrest E.: Heat-Transfer and Boundary-Layer Transition on a Heated 20° Cone at a Mach Number of 1.53. RM A8L28, February 1949.

Wimbrow, William R.: Experimental Investigation of Temperature Recovery Factors on Bodies of Revolution at Supersonic Speeds. TN 1975, October 1949.

Klunker, E. B. and Ivey, H. Reese: An Analysis of Supersonic Aerodynamic Heating with Continuous Fluid Injection. Rept. 990, 1950.

Scherrer, Richard and Gowen, Forrest E.: Comparison of Theoretical and Experimental Heat Transfer on a Cooled 20° Cone with a Laminar Boundary Layer at a Mach Number of 2.02. TN 2087, May 1950.

Schuh, H.: The Solution of the Laminar-Boundary-Layer Equation for the Flat Plate for Velocity and Temperature Fields for Variable Physical Properties and for the Diffusion Field at High Concentration. TM 1275, May 1950.

Stalder, Jackson R.; Rubesin, Morris W.; and Tendeland, Thorval: A Determination of the Laminar-, Transitional-, and Turbulent-Boundary-Layer Temperature-Recovery Factors on a Flat Plate in Supersonic Flow. TN 2077, June 1950.

Blue, Robert E.: Interferometer Corrections and Measurements of Laminar Boundary Layer in Supersonic Stream. TN 2110, June 1950.

Neel, Carr B., Jr. and Bright, Loren G.: The Effect of Ice Formations on Propeller Performance. TN 2212, October 1950.

Tucker, Maurice and Maslen, Stephen H.: Turbulent Boundary-Layer Temperature Recovery Factors in Two-Dimensional Supersonic Flow. TN 2296, February 1951.

HEAT TRANSFER
(1.1.4.2)

Scherrer, Richard: The Effects of Aerodynamic Heating and Heat Transfer on the Surface Temperature of a Body of Revolution in Steady Supersonic Flight. Rept. 917, 1948.

Stalder, Jackson R. and Jukoff, David: Heat Transfer to Bodies Traveling at High Speed in the Upper Atmosphere. Rept. 944, 1949.

Scherrer, Richard; Wimbrow, William R.; and Gowen, Forrest E.: Heat-Transfer and Boundary-Layer Transition on a Heated 20° Cone at a Mach Number of 1.53. RM A8L28, February 1949.

Wimbrow, William R.: Experimental Investigation of Temperature Recovery Factors on Bodies of Revolution at Supersonic Speeds. TN 1975, October 1949.

Klunker, E. B. and Ivey, H. Reese: An Analysis of Supersonic Aerodynamic Heating with Continuous Fluid Injection. Rept. 990, 1950.

Scherrer, Richard and Gowen, Forrest E.: Comparison of Theoretical and Experimental Heat Transfer on a Cooled 20° Cone with a Laminar Boundary Layer at a Mach Number of 2.02. TN 2087, May 1950.

Heat Transfer - Aerodynamic (Cont.)

- Stalder, Jackson R.; Rubesin, Morris W.; and Tendeland, Thorval: A Determination of the Laminar-, Transitional-, and Turbulent-Boundary-Layer Temperature-Recovery Factors on a Flat Plate in Supersonic Flow. TN 2077, June 1950.
- Corrsin, Stanley and Uberoi, Mahinder S.: Spectrums and Diffusion in a Round Turbulent Jet. TN 2124, July 1950.
- Gray, Vernon H.: Improvements in Heat Transfer for Anti-Icing of Gas-Heated Airfoils with Internal Fins and Partitions. TN 2126, July 1950.
- Schuh, H.: The Solution of the Laminar-Boundary-Layer Equation for the Flat Plate for Velocity and Temperature Fields for Variable Physical Properties and for the Diffusion Field at High Concentration. TM 1275, May 1950.
- Ludwig, H.: Instrument for Measuring the Wall Shearing Stress of Turbulent Boundary Layers. TM 1284, May 1950.
- Wimbrow, William R. and Scherrer, Richard: Laminar-Boundary-Layer Heat-Transfer Characteristics of a Body of Revolution with a Pressure Gradient at Supersonic Speeds. TN 2148, August 1950.
- Manson, S. V.: Correlations of Heat-Transfer Data and of Friction Data for Interrupted Plane Fins Staggered in Successive Rows. TN 2237, December 1950.
- Deissler, Robert G.: Analytical Investigation of Turbulent Flow in Smooth Tubes with Heat Transfer with Variable Fluid Properties for Prandtl Number of 1. TN 2242, December 1950.
- Szablewski, W.: The Diffusion of a Hot Air Jet in Air in Motion. TM 1288, December 1950.
- Desmon, Leland G. and Sams, Eldon W.: Correlation of Forced-Convection Heat-Transfer Data for Air Flowing in Smooth Platinum Tube with Long-Approach Entrance at High Surface and Inlet-Air Temperatures. RM E50H23, November 1950.
- Livingood, John N. B. and Brown, W. Byron: Analysis of Temperature Distribution in Liquid-Cooled Turbine Blades. TN 2321, April 1951.
- Rubesin, Morris W.: The Effect of an Arbitrary Surface-Temperature Variation along a Flat Plate on the Convective Heat Transfer in an Incompressible Turbulent Boundary Layer. TN 2345, April 1951.
- Shvets, M. E.: Method of Successive Approximations for the Solution of Certain Problems in Aerodynamics. TM 1286, April 1951.
- ADDITIONS OF HEAT
(1.1.4.3)
- Liepmann, Hans W. and Fila, Gertrude H.: Investigations of Effects of Surface Temperature and Single Roughness Elements on Boundary-Layer Transition. Rept. 890, 1947.
- Scherrer, Richard; Wimbrow, William R.; and Gowen, Forrest E.: Heat-Transfer and Boundary-Layer Transition on a Heated 20° Cone at a Mach Number of 1.53. RM A8L28, February 1949.
- Callaghan, Edmund E. and Bowden, Dean T.: Investigation of Flow Coefficient of Circular, Square, and Elliptical Orifices at High Pressure Ratios. TN 1947, September 1949.
- Ruggeri, Robert S.; Callaghan, Edmund E.; and Bowden, Dean T.: Penetration of Air Jets Issuing from Circular, Square, and Elliptical Orifices Directed Perpendicularly to an Air Stream. TN 2019, February 1950.
- Scherrer, Richard and Gowen, Forrest E.: Comparison of Theoretical and Experimental Heat Transfer on a Cooled 20° Cone with a Laminar Boundary Layer at a Mach Number of 2.02. TN 2087, May 1950.

Additions of Heat - Aerodynamic (Cont.)

Schuh, H.: The Solution of the Laminar-Boundary-Layer Equation for the Flat Plate for Velocity and Temperature Fields for Variable Physical Properties and for the Diffusion Field at High Concentration. TM 1275, May 1950.

Lowdermilk, Warren H. and Grele, Milton D.: Influence of Tube-Entrance Configuration on Average Heat-Transfer Coefficients and Friction Factors for Air Flowing in an Inconel Tube. RM E50E23, August 1950.

Pinkel, Benjamin; Noyes, Robert N.; and Valerino, Michael F.: Method for Determining Pressure Drop of Air Flowing through Constant-Area Passages for Arbitrary Heat-Input Distributions. TN 2186, September 1950.

Kaufman, Samuel J. and Isely, Francis D.: Preliminary Investigation of Heat Transfer to Water Flowing in an Electrically Heated Inconel Tube. RM E50G31, September 1950.

Pinkel, I. Irving and Serafini, John S.: Graphical Method for Obtaining Flow Field in a Two-Dimensional Supersonic Stream to which Heat is Added. TN 2206, November 1950.

Desmon, Leland G. and Sams, Eldon W.: Correlation of Forced-Convection Heat-Transfer Data for Air Flowing in Smooth Platinum Tube with Long-Approach Entrance at High Surface and Inlet-Air Temperatures. RM E50H23, November 1950.

Valerino, M. F. and Doyle, R. B.: Method for Determining Pressure Drop of Monatomic Gases Flowing in Turbulent Motion through Constant-Area Passages with Simultaneous Friction and Heat Addition. TN 2328, April 1951.

Henry, John R. and Bennett, J. Buel: Method for Calculation of Ram-Jet Performance. TN 2357, June 1951.

FLOW OF RAREFIED GASES (1.1.5)

Sanger, Eugen: The Gas Kinetics of Very High Flight Speeds. TM 1270, May 1950.

Kane, E. D. and Maslach, G. J.: Impact-Pressure Interpretation in a Rarefied Gas at Supersonic Speeds. TN 2210, October 1950.

Stalder, Jackson R.; Goodwin, Glen; and Creager, Marcus O.: A Comparison of Theory and Experiment for High-Speed Free-Molecule Flow. TN 2244, December 1950.

Benson, James M.: The Physical Properties of Active Nitrogen in Low-Density Flow. TN 2293, February 1951.

FREE MOLECULE FLOW (1.1.5.2)

Stalder, Jackson R. and Jukoff, David: Heat Transfer to Bodies Traveling at High Speed in the Upper Atmosphere. Rept. 944, 1949.

Sanger, Eugen: The Gas Kinetics of Very High Flight Speeds. TM 1270, May 1950.

Stalder, Jackson R.; Goodwin, Glen; and Creager, Marcus O.: A Comparison of Theory and Experiment for High-Speed Free-Molecule Flow. TN 2244, December 1950.

Wings (1.2)

Gurevich, M. I.: Lift Force of an Arrow-Shaped Wing. TM 1245, October 1949.

WING SECTIONS (1.2.1)

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of a Thin, Faired, Double-Wedge Airfoil Section with Nose Flaps of Various Chords. TN 2018, February 1950.

Vincenti, Walter G.: Comparison between Theory and Experiment for Wings at Supersonic Speeds. TN 2100, June 1950.

Perl, William: Calculation of Transonic Flows past Thin Airfoils by an Integral Method. TN 2130, July 1950.

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of the Stalling of a Thin, Faired, Double-Wedge Airfoil with Nose Flap. TN 2172, August 1950.

SECTION THEORY (1.2.1.1)

Eggers, A. J., Jr.: Aerodynamic Characteristics at Subcritical and Supercritical Mach Numbers of Two Airfoil Sections having Sharp Leading Edges and Extreme Rearward Positions of Maximum Thickness. RM A7C10, November 1947.

Loftin, Laurence K., Jr.: Theoretical and Experimental Data for a Number of NACA 6A-Series Airfoil Sections. Rept. 903, 1948.

Czarnecki, K. R. and Schueller, C. F.: Investigation of Interaction Effects Arising from Side-Wall Boundary Layers in Supersonic Wind-Tunnel Tests of Airfoils. RM L8G27, November 1948.

Heaslet, Max. A. and Lomax, Harvard: Two-Dimensional Unsteady Lift Problems in Supersonic Flight. Rept. 945, 1949.

Graham, Donald J.: The Development of Cambered Airfoil Sections Having Favorable Lift Characteristics at Supercritical Mach Numbers. Rept. 947, 1949.

Costello, George R.: Method of Designing Blades with Prescribed Velocity Distributions in Compressible Potential Flows. Rept. 978, 1950.

Bers, Lipman: Velocity Distribution on Wing Sections of Arbitrary Shape in Compressible Potential Flow. III - Circulatory Flows Obeying the Simplified Density-Speed Relation. TN 2056, March 1950.

Gelbart, Abe and Resch, Daniel: A Method of Computing Subsonic Flows around Given Airfoils. TN 2057, March 1950.

Bers, Lipman: On the Continuation of a Potential Gas Flow across the Sonic Line. TN 2058, April 1950.

Barmby, J. G.; Cunningham, H. J.; and Garrick, I. E.: Study of Effects of Sweep on the Flutter of Cantilever Wings. TN 2121, June 1950.

Perl, William: Calculation of Transonic Flows past Thin Airfoils by an Integral Method. TN 2130, July 1950.

Amick, James L.: Comparison of the Experimental Pressure Distribution on an NACA 0012 Profile at High Speeds with that Calculated by the Relaxation Method. TN 2174, August 1950.

Ivey, H. Reese and Cline, Charles W.: Effect of Heat-Capacity Lag on the Flow through Oblique Shock Waves. TN 2196, October 1950.

Section Theory - Wing (Cont.)

- Czarnecki, K. R. and Mueller, James N.: An Approximate Method of Calculating Pressures in the Tip Region of a Rectangular Wing of Circular-Arc Section at Supersonic Speeds. TN 2211, October 1950.
- Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls Having Leading and Trailing Edges Swept ahead of the Mach Lines. TN 2221, November 1950.
- Harder, Keith C. and Klunker, E. B.: On a Source-Sink Method for the Solution of the Prandtl-Busemann Iteration Equations in Two-Dimensional Compressible Flow. TN 2253, December 1950.
- Spreiter, John R.: Similarity Laws for Transonic Flow about Wings of Finite Span. TN 2273, January 1951.
- Graham, David: A Modification to Thin-Airfoil-Section Theory, Applicable to Arbitrary Airfoil Sections, to Account for the Effects of Thickness on the Lift Distribution. TN 2298, February 1951.
- Vincenti, Walter G. and Wagoner, Cleo B.: Transonic Flow past a Wedge Profile with Detached Bow Wave - General Analytical Method and Final Calculated Results. TN 2339, April 1951.
- Klunker, E. B. and Harder, Keith C.: On the Second-Order Tunnel-Wall-Constriction Corrections in Two-Dimensional Compressible Flow. TN 2350, April 1951.

SECTION VARIABLES
(1.2.1.2)

- Gendler, Sel and Johnson, Donald F.: Determination of Minimum Moments of Inertia of Arbitrarily Shaped Areas, such as Hollow Turbine Blades. RM E9H10, February 1950.
- Kelly, John A.: Effects of Modifications to the Leading-Edge Region on the Stalling Characteristics of the NACA 63₁-012 Airfoil Section. TN 2228, November 1950.

Camber
(1.2.1.2.1)

- Loftin, Laurence K., Jr.: Theoretical and Experimental Data for a Number of NACA 6A-Series Airfoil Sections. Rept. 903, 1948.
- Graham, Donald J.: The Development of Cambered Airfoil Sections Having Favorable Lift Characteristics at Supercritical Mach Numbers. Rept. 947, 1949.
- Loftin, Laurence K., Jr. and Smith, Hamilton A.: Aerodynamic Characteristics of 15 NACA Airfoil Sections at Seven Reynolds Numbers from 0.7×10^6 to 9.0×10^6 . TN 1945, October 1949.
- Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.
- Summers, James L. and Treon, Stuart L.: The Effects of Amount and Type of Camber on the Variation with Mach Number of the Aerodynamic Characteristics of a 10-Percent-Thick NACA 64A-Series Airfoil Section. TN 2096, May 1950.
- McCullough, George B. and Haire, William M.: Low-Speed Characteristics of Four Cambered, 10-Percent-Thick NACA Airfoil Sections. TN 2177, August 1950.
- Graham, David: A Modification to Thin-Airfoil-Section Theory, Applicable to Arbitrary Airfoil Sections, to Account for the Effects of Thickness on the Lift Distribution. TN 2298, February 1951.

Thickness
(1.2.1.2.2)

- Hamilton, William T. and Nelson, Warren H.: Summary Report on the High-Speed Characteristics of Six Model Wings having NACA 65₁-Series Sections. Rept. 877, 1947.

Thickness - Wing Sections (Cont.)

Graham, Donald J.: The Development of Cambered Airfoil Sections having Favorable Lift Characteristics at Supercritical Mach Numbers. Rept. 947, 1949.

Loftin, Laurence K., Jr. and Smith, Hamilton A.: Aerodynamic Characteristics of 15 NACA Airfoil Sections at Seven Reynolds Numbers from 0.7×10^6 to 9.0×10^6 . TN 1945, October 1949.

Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.

Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Swept-back Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.

Smith, Hamilton A. and Schaefer, Raymond F.: Aerodynamic Characteristics at Reynolds Numbers of 3.0×10^6 and 6.0×10^6 of Three Airfoil Sections Formed by Cutting off Various Amounts from the Rear Portion of the NACA 0012 Airfoil Section. TN 2074, April 1950.

Czarnecki, K. R. and Mueller, James N.: An Approximate Method of Calculating Pressures in the Tip Region of a Rectangular Wing of Circular-Arc Section at Supersonic Speeds. TN 2211, October 1950.

Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls Having Leading and Trailing Edges Swept ahead of the Mach Lines. TN 2221, November 1950.

Graham, David: A Modification to Thin-Airfoil-Section Theory, Applicable to Arbitrary Airfoil Sections, to Account for the Effects of Thickness on the Lift Distribution. TN 2298, February 1951.

Vincenti, Walter G. and Wagoner, Cleo B.: Transonic Flow past a Wedge Profile with Detached Bow Wave - General Analytical Method and Final Calculated Results. TN 2339, April 1951.

Thickness Distribution
(1. 2. 1. 2. 3)

Eggers, A. J., Jr.: Aerodynamic Characteristics at Subcritical and Supercritical Mach Numbers of Two Airfoil Sections having Sharp Leading Edges and Extreme Rearward Positions of Maximum Thickness. RM A7C10, November 1947.

Loftin, Laurence K., Jr.: Theoretical and Experimental Data for a Number of NACA 6A-Series Airfoil Sections. Rept. 903, 1948.

Zalovcik, John A. and Luke, Ernest P.: Some Flight Measurements of Pressure-Distribution and Boundary-Layer Characteristics in the Presence of Shock. RM L8C22, July 1948.

Graham, Donald J.: The Development of Cambered Airfoil Sections Having Favorable Lift Characteristics at Supercritical Mach Numbers. Rept. 947, 1949.

Loftin, Laurence K., Jr. and Smith, Hamilton A.: Aerodynamic Characteristics of 15 NACA Airfoil Sections at Seven Reynolds Numbers from 0.7×10^6 to 9.0×10^6 . TN 1945, October 1949.

Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.

Smith, Hamilton A. and Schaefer, Raymond F.: Aerodynamic Characteristics at Reynolds Numbers of 3.0×10^6 and 6.0×10^6 of Three Airfoil Sections Formed by Cutting off Various Amounts from the Rear Portion of the NACA 0012 Airfoil Section. TN 2074, April 1950.

Thickness Distribution - Wing Sections
(Cont.)

McCullough, George B. and Haire, William M.: Low-Speed Characteristics of Four Cambered, 10-Percent-Thick NACA Airfoil Sections. TN 2177, August 1950.

Inlets and Exits
(1.2.1.2.4)

Perl, William and Moses, H. E.: Velocity Distributions on Two-Dimensional Wing-Duct Inlets by Conformal Mapping. Rept. 893, 1948.

Ruden, P.: Two-Dimensional Symmetrical Inlets with External Compression. TM 1279, March 1950.

Brödel, Walter: Theory of Plane, Symmetrical Inlet Diffusers. TM 1267, April 1950.

Surface Conditions
(1.2.1.2.5)

Quinn, John H., Jr.: Summary of Drag Characteristics of Practical-Construction Wing Sections. Rept. 910, 1948.

Loftin, Laurence K., Jr. and Smith, Hamilton A.: Aerodynamic Characteristics of 15 NACA Airfoil Sections at Seven Reynolds Numbers from 0.7×10^6 to 9.0×10^6 . TN 1945, October 1949.

Schaefer, Raymond F. and Smith, Hamilton A.: Aerodynamic Characteristics of the NACA 8-H-12 Airfoil Section at Six Reynolds Numbers from 1.8×10^6 to 11.0×10^6 . TN 1998, December 1949.

Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.

Smith, Hamilton A. and Schaefer, Raymond F.: Aerodynamic Characteristics at Reynolds Numbers of 3.0×10^6 and 6.0×10^6 of Three Airfoil Sections formed by Cutting Off Various Amounts from the Rear Portion of the NACA 0012 Airfoil Section. TN 2074, April 1950.

Horton, Elmer A.; Racisz, Stanley F.; and Paradiso, Nicholas J.: Investigation of Boundary-Layer Control to Improve the Lift and Drag Characteristics of the NACA 652-415 Airfoil Section with Double Slotted and Plain Flaps. TN 2149, August 1950.

McCullough, George B. and Haire, William M.: Low-Speed Characteristics of Four Cambered, 10-Percent-Thick NACA Airfoil Sections. TN 2177, August 1950.

Tillmann, W.: Additional Measurements of the Drag of Surface Irregularities in Turbulent Boundary Layers. TM 1299, January 1951.

Gowan, William H., Jr. and Mulholland, Donald R.: Effectiveness of Thermal-Pneumatic Airfoil-Ice-Protection System. RM E50K10a, April 1951.

DESIGNATED PROFILES
(1.2.1.3)

Racisz, Stanley F.: Experimental Investigation of the Effectiveness of Various Suction-Slot Arrangements as a Means for Increasing the Maximum Lift of the NACA 653-018 Airfoil Section. RM L50A10, March 1950.

Horton, Elmer A.; Racisz, Stanley F.; and Paradiso, Nicholas J.: Investigation of Boundary-Layer Control to Improve the Lift and Drag Characteristics of the NACA 652-415 Airfoil Section with Double Slotted and Plain Flaps. TN 2149, August 1950.

HIGH LIFT DEVICES
(1.2.1.4)

McCullough, George B. and Gault, Donald E.: An Experimental Investigation of the NACA 631-012 Airfoil Section with Leading-Edge and Mid-chord Suction Slots. TN 2041, February 1950.

Plain Flaps
(1.2.1.4.1)

Cahill, Jones F.: Summary of Section Data on Trailing-Edge High-Lift Devices. Rept. 938, 1949.

Plain Flaps - Wing Sections (Cont.)

Graham, Donald J.: The Development of Cambered Airfoil Sections Having Favorable Lift Characteristics at Supercritical Mach Numbers. Rept. 947, 1949.

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of a Thin, Faired, Double-Wedge Airfoil Section with Nose Flaps of Various Chords. TN 2018, February 1950.

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of the Stalling of a Thin, Faired, Double-Wedge Airfoil with Nose Flap. TN 2172, August 1950.

Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls Having Leading and Trailing Edges Swept ahead of the Mach Lines. TN 2221, November 1950.

DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.

Split Flaps
(1. 2. 1. 4. 2)

Cahill, Jones F.: Summary of Section Data on Trailing-Edge High-Lift Devices. Rept. 938, 1949.

Stephenson, Jack D.: The Effects of Aerodynamic Brakes upon the Speed Characteristics of Airplanes. TN 1939, September 1949.

Loftin, Laurence K., Jr. and Smith, Hamilton A.: Aerodynamic Characteristics of 15 NACA Airfoil Sections at Seven Reynolds Numbers from 0.7×10^6 to 9.0×10^6 . TN 1945, October 1949.

Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.

McCullough, George B. and Haire, William M.: Low-Speed Characteristics of Four Cambered, 10-Percent-Thick NACA Airfoil Sections. TN 2177, August 1950.

Slotted Flaps
(1. 2. 1. 4. 3)

Cahill, Jones F.: Summary of Section Data on Trailing-Edge High-Lift Devices. Rept. 938, 1949.

Horton, Elmer A.; Racisz, Stanley F.; and Paradiso, Nicholas J.: Investigation of Boundary-Layer Control to Improve the Lift and Drag Characteristics of the NACA 652-415 Airfoil Section with Double Slotted and Plain Flaps. TN 2149, August 1950.

Leading Edge Flaps
(1. 2. 1. 4. 4)

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of a Thin, Faired, Double-Wedge Airfoil Section with Nose Flaps of Various Chords. TN 2018, February 1950.

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of the Stalling of a Thin, Faired, Double-Wedge Airfoil with Nose Flap. TN 2172, August 1950.

Kelly, John A.: Effects of Modifications to the Leading-Edge Region on the Stalling Characteristics of the NACA 631-012 Airfoil Section. TN 2228, November 1950.

CONTROLS
(1. 2. 1. 5)

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Flap Type
(1. 2. 1. 5. 1)

Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls Having Leading and Trailing Edges Swept ahead of the Mach Line. TN 2221, November 1950.

BOUNDARY LAYER
(1.2.1.6)

- Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. Rept. 876, 1947.
- Eggers, A. J., Jr.: Aerodynamic Characteristics at Subcritical and Supercritical Mach Numbers of Two Airfoil Sections having Sharp Leading Edges and Extreme Rearward Positions of Maximum Thickness. RM A7C10, November 1947.
- Schubauer, G. B. and Skramstad, H. K.: Laminar-Boundary-Layer Oscillations and Transition on a Flat Plate. Rept. 909, 1948.
- Zalovcik, John A. and Luke, Ernest P.: Some Flight Measurements of Pressure-Distribution and Boundary-Layer Characteristics in the Presence of Shock. RM L8C22, July 1948.
- Kueth, A. M.; McKee, P. B.; and Curry, W. H.: Measurements in the Boundary Layer of a Yawed Wing. TN 1946, September 1949.
- Loftin, Laurence K., Jr. and Burrows, Dale L.: Investigations Relating to the Extension of Laminar Flow by Means of Boundary-Layer Suction through Slots. TN 1961, October 1949.
- Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.
- McCullough, George B. and Gault, Donald E.: An Experimental Investigation of the NACA 631-012 Airfoil Section with Leading-Edge and Midchord Suction Slots. TN 2041, February 1950.
- Tucker, Maurice: Approximate Turbulent Boundary-Layer Development in Plane Compressible Flow along Thermally Insulated Surfaces with Application to Supersonic-Tunnel Contour Correction. TN 2045, March 1950.
- Braslow, Albert L. and Visconti, Fioravante: Further Experimental Studies of Area Suction for the Control of the Laminar Boundary Layer on a Porous Bronze NACA 64A010 Airfoil. TN 2112, May 1950.
- Horton, Elmer A.; Racisz, Stanley F.; and Paradiso, Nicholas J.: Investigation of Boundary-Layer Control to Improve the Lift and Drag Characteristics of the NACA 652-415 Airfoil Section with Double Slotted and Plain Flaps. TN 2149, August 1950.
- Peterson, Robert F.: The Boundary-Layer and Stalling Characteristics of the NACA 64A010 Airfoil Section. TN 2235, November 1950.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.
- Tucker, Maurice: Approximate Calculation of Turbulent Boundary-Layer Development in Compressible Flow. TN 2337, April 1951.
- Characteristics
(1.2.1.6.1)
- Blue, Robert E.: Interferometer Corrections and Measurements of Laminar Boundary Layer in Supersonic Stream. TN 2110, June 1950.
- Mangler, W.: General Solution of Prandtl's Boundary-Layer Equation. TM 1278, June 1950.
- Tetervin, Neal and Lin, Chia Chiao: A General Integral Form of the Boundary-Layer Equation for Incompressible Flow with an Application to the Calculation of the Separation Point of Turbulent Boundary Layers. TN 2158, August 1950.
- Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of the Stalling of a Thin, Faired, Double-Wedge Airfoil with Nose Flap. TN 2172, August 1950.
- Bursnall, William J. and Loftin, Laurence K., Jr.: Experimental Investigation of Localized Regions of Laminar-Boundary-Layer Separation. TN 2338, April 1951.

Control
(1.2.1.6.2)

Racisz, Stanley F.: Experimental Investigation of the Effectiveness of Various Suction-Slot Arrangements as a Means for Increasing the Maximum Lift of the NACA 65₃-018 Airfoil Section. RM L50A10, March 1950.

REYNOLDS NUMBER EFFECTS
(1.2.1.7)

Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. Rept. 876, 1947.

Loftin, Laurence K., Jr. and Smith, Hamilton A.: Aerodynamic Characteristics of 15 NACA Airfoil Sections at Seven Reynolds Numbers from 0.7×10^6 to 9.0×10^6 . TN 1945, October 1949.

Schaefer, Raymond F. and Smith, Hamilton A.: Aerodynamic Characteristics of the NACA 8-H-12 Airfoil Section at Six Reynolds Numbers from 1.8×10^6 to 11.0×10^6 . TN 1998, December 1949.

Loftin, Laurence K., Jr. and Bursnall, William J.: The Effects of Variations in Reynolds Number between 3.0×10^6 and 25.0×10^6 upon the Aerodynamic Characteristics of a Number of NACA 6-Series Airfoil Sections. Rept. 964, 1950.

Klunker, E. B. and Ivey, H. Reese: An Analysis of Supersonic Aerodynamic Heating with Continuous Fluid Injection. Rept. 990, 1950.

Racisz, Stanley F.: Experimental Investigation of the Effectiveness of Various Suction-Slot Arrangements as a Means for Increasing the Maximum Lift of the NACA 65₃-018 Airfoil Section. RM L50A10, March 1950.

Smith, Hamilton A. and Schaefer, Raymond F.: Aerodynamic Characteristics at Reynolds Numbers of 3.0×10^6 and 6.0×10^6 of Three Airfoil Sections Formed by Cutting off Various Amounts from the Rear Portion of the NACA 0012 Airfoil Section. TN 2074, April 1950.

Horton, Elmer A.; Racisz, Stanley F.; and Paradiso, Nicholas J.: Investigation of Boundary-Layer Control to Improve the Lift and Drag Characteristics of the NACA 65₂-415 Airfoil Section with Double Slotted and Plain Flaps. TN 2149, August 1950.

Bursnall, William J. and Loftin, Laurence K., Jr.: Experimental Investigation of Localized Regions of Laminar-Boundary-Layer Separation. TN 2338, April 1951.

MACH NUMBER EFFECTS
(1.2.1.8)

Lees, Lester: The Stability of the Laminar Boundary Layer in a Compressible Fluid. Rept. 876, 1947.

Eggers, A. J., Jr.: Aerodynamic Characteristics at Subcritical and Supercritical Mach Numbers of Two Airfoil Sections having Sharp Leading Edges and Extreme Rearward Positions of Maximum Thickness. RM A7C10, November 1947.

Zalovcik, John A. and Luke, Ernest P.: Some Flight Measurements of Pressure-Distribution and Boundary-Layer Characteristics in the Presence of Shock. RM L8C22, July 1948.

Graham, Donald J.: The Development of Cambered Airfoil Sections Having Favorable Lift Characteristics at Supercritical Mach Numbers. Rept. 947, 1949.

Costello, George R.: Method of Designing Blades with Prescribed Velocity Distributions in Compressible Potential Flows. Rept. 978, 1950.

Klunker, E. B. and Ivey, H. Reese: An Analysis of Supersonic Aerodynamic Heating with Continuous Fluid Injection. Rept. 990, 1950.

Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Sweptback Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.

Mach No. Effects - Wing Sections (Cont.)

- Summers, James L. and Treon, Stuart L.: The Effects of Amount and Type of Camber on the Variation with Mach Number of the Aerodynamic Characteristics of a 10-Percent-Thick NACA 64A-Series Airfoil Section. TN 2096, May 1950.
- Perl, William: Calculation of Transonic Flows past Thin Airfoils by an Integral Method. TN 2130, July 1950.
- Amick, James L.: Comparison of the Experimental Pressure Distribution on an NACA 0012 Profile at High Speeds with that Calculated by the Relaxation Method. TN 2174, August 1950.
- Ivey, H. Reese and Cline, Charles W.: Effect of Heat-Capacity Lag on the Flow through Oblique Shock Waves. TN 2196, October 1950.
- Vincenti, Walter G. and Wagoner, Cleo B.: Transonic Flow past a Wedge Profile with Detached Bow Wave - General Analytical Method and Final Calculated Results. TN 2339, April 1951.
- Klunker, E. B. and Harder, Keith C.: On the Second-Order Tunnel-Wall-Constriction Corrections in Two-Dimensional Compressible Flow. TN 2350, April 1951.

COMPLETE WINGS (1.2.2)

- Ellis, Macon C., Jr. and Hasel, Lowell E.: Preliminary Investigation at Supersonic Speeds of Triangular and Sweptback Wings. TN 1955, October 1949.
- Cohen, Doris: Formulas and Charts for the Supersonic Lift and Drag of Flat Swept-Back Wings with Interacting Leading and Trailing Edges. TN 2093, May 1950.
- Jones, Robert T.: The Spanwise Distribution of Lift for Minimum Induced Drag of Wings having a Given Lift and a Given Bending Moment. TN 2249, December 1950.

WING THEORY (1.2.2.1)

- Heaslet, Max. A.; Lomax, Harvard; and Jones, Arthur L.: Volterra's Solution of the Wave Equation as Applied to Three-Dimensional Supersonic Airfoil Problems. Rept. 889, 1947.
- Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.
- Heaslet, Max. A. and Lomax, Harvard: The Use of Source-Sink and Doublet Distributions Extended to the Solution of Arbitrary Boundary Value Problems in Supersonic Flow. Rept. 900, 1948.
- Jones, Robert T.: Subsonic Flow over Thin Oblique Airfoils at Zero Lift. Rept. 902, 1948.
- Swanson, Robert S. and Crandall, Stewart M.: Lifting-Surface-Theory Aspect-Ratio Corrections to the Lift and Hinge-Moment Parameters for Full-Span Elevators on Horizontal Tail Surfaces. Rept. 911, 1948.
- DeYoung, John and Harper, Charles W.: Theoretical Symmetric Span Loading at Subsonic Speeds for Wings Having Arbitrary Plan Form. Rept. 921, 1948.
- Harmon, Sidney M.: Stability Derivatives of Thin Rectangular Wings at Supersonic Speeds. Wing Diagonals ahead of Tip Mach Lines. Rept. 925, 1949.
- Lomax, Harvard and Heaslet, Max. A.: Damping-in-Roll Calculations for Slender Swept-Back Wings and Slender Wing-Body Combinations. TN 1950, September 1949.
- Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.
- Piland, Robert O.: Summary of the Theoretical Lift, Damping-in-Roll, and Center-of-Pressure Characteristics of Various Wing Plan Forms at Supersonic Speeds. TN 1977, October 1949.

Theory - Complete Wings (Cont.)

- Gurevich, M. I.: Lift Force of an Arrow-Shaped Wing. TM 1245, October 1949.
- Lomax, Harvard and Heaslet, Max. A.: Linearized Lifting-Surface Theory for Swept-Back Wings with Slender Plan Forms. TN 1992, December 1949.
- Evvard, John C.: Use of Source Distributions for Evaluating Theoretical Aerodynamics of Thin Finite Wings at Supersonic Speeds. Rept. 951, 1950.
- Heaslet, Max. A.; Lomax, Harvard; and Spreiter, John R.: Linearized Compressible-Flow Theory for Sonic Flight Speeds. Rept. 956, 1950.
- Heaslet, Max. A. and Lomax, Harvard: The Calculation of Downwash behind Supersonic Wings with an Application to Triangular Plan Forms. Rept. 957, 1950.
- Heaslet, Max. A. and Lomax, Harvard: The Application of Green's Theorem to the Solution of Boundary-Value Problems in Linearized Supersonic Wing Theory. Rept. 961, 1950.
- Spreiter, John R.: The Aerodynamic Forces on Slender Plane- and Cruciform-Wing and Body Combinations. Rept. 962, 1950.
- Bird, John D.: Some Theoretical Low-Speed Span Loading Characteristics of Swept Wings in Roll and Sideslip. Rept. 969, 1950.
- Malvestuto, Frank S., Jr.; Margolis, Kenneth; and Ribner, Herbert S.: Theoretical Lift and Damping in Roll at Supersonic Speeds of Thin Sweptback Tapered Wings with Streamwise Tips, Subsonic Leading Edges and Supersonic Trailing Edges. Rept. 970, 1950.
- Malvestuto, Frank S., Jr. and Margolis, Kenneth: Theoretical Stability Derivatives of Thin Sweptback Wings Tapered to a Point with Sweptback or Sweptforward Trailing Edges for a Limited Range of Supersonic Speeds. Rept. 971, 1950.
- Mirels, Harold and Haefeli, Rudolph C.: Line-Vortex Theory for Calculation of Supersonic Downwash. Rept. 983, 1950.
- Brown, Clinton E.: The Reversibility Theorem for Thin Airfoils in Subsonic and Supersonic Flow. Rept. 986, 1950.
- Lagerstrom, P. A.: Linearized Supersonic Theory of Conical Wings. TN 1685, January 1950.
- Jones, Arthur L. and Alksne, Alberta: The Load Distribution Due to Sideslip on Triangular, Trapezoidal, and Related Plan Forms in Supersonic Flow. TN 2007, January 1950.
- Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Sweptback Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.
- DeYoung, John: Spanwise Loading for Wings and Control Surfaces of Low Aspect Ratio. TN 2011, January 1950.
- Moskowitz, Barry and Moeckel, W. E.: First-Order Theory for Unsteady Motion of Thin Wings at Supersonic Speeds. TN 2034, February 1950.
- Walker, Harold J. and Ballantyne, Mary B.: Pressure Distribution and Damping in Steady Roll at Supersonic Mach Numbers of Flat Swept-Back Wings with Subsonic Edges. TN 2047, March 1950.

Theory - Complete Wings (Cont.)

- Margolis, Kenneth: Theoretical Lift and Damping in Roll of Thin Sweptback Tapered Wings with Raked-In and Cross-Stream Wing Tips at Supersonic Speeds. Subsonic Leading Edges. TN 2048, March 1950.
- Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.
- Vincenti, Walter G.: Comparison between Theory and Experiment for Wings at Supersonic Speeds. TN 2100, June 1950.
- Barmby, J. G.; Cunningham, H. J.; and Garrick, I. E.: Study of Effects of Sweep on the Flutter of Cantilever Wings. TN 2121, June 1950.
- Margolis, Kenneth: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Subsonic Leading Edges. TN 2122, June 1950.
- Diederich, Franklin W.: Approximate Aerodynamic Influence Coefficients for Wings of Arbitrary Plan Form in Subsonic Flow. TN 2092, July 1950.
- Martin, John C.: The Calculation of Downwash behind Wings of Arbitrary Plan Form at Supersonic Speeds. TN 2135, July 1950.
- DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.
- Tucker, Warren A. and Piland, Robert O.: Estimation of the Damping in Roll of Supersonic-Leading-Edge Wing-Body Combinations. TN 2151, July 1950.
- Harmon, Sidney M. and Martin, John C.: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Supersonic Leading Edges. TN 2156, July 1950.
- Haefeli, Rudolph C.; Mirels, Harold; and Cummings, John L.: Charts for Estimating Downwash behind Rectangular, Trapezoidal, and Triangular Wings at Supersonic Speeds. TN 2141, August 1950.
- Mirels, Harold: Lift-Cancellation Technique in Linearized Supersonic Wing Theory. TN 2145, August 1950.
- Ribner, Herbert S.: On the Effect of Subsonic Trailing Edges on Damping in Roll and Pitch of Thin Sweptback Wings in a Supersonic Stream. TN 2146, August 1950.
- Ribner, Herbert S.: Some Conical and Quasi-Conical Flows in Linearized Supersonic-Wing Theory. TN 2147, August 1950.
- Walker, Harold J. and Ballantyne, Mary B.: Pressure Distribution and Damping in Steady Pitch at Supersonic Mach Numbers of Flat Swept-Back Wings having all Edges Subsonic. TN 2197, October 1950.
- Czarnecki, K. R. and Mueller, James N.: An Approximate Method of Calculating Pressures in the Tip Region of a Rectangular Wing of Circular-Arc Section at Supersonic Speeds. TN 2211, October 1950.
- Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls having Leading and Trailing Edges Swept ahead of the Mach Lines. TN 2221, November 1950.
- Jones, Robert T.: The Spanwise Distribution of Lift for Minimum Induced Drag of Wings having a Given Lift and a Given Bending Moment. TN 2249, December 1950.

Theory - Complete Wings (Cont.)

- Lomax, Harvard; Heaslet, Max. A.; and Fuller, Franklyn B.: Formulas for Source, Doublet, and Vortex Distributions in Supersonic Wing Theory. TN 2252, December 1950.
- Lomax, Harvard; Heaslet, Max. A.; and Fuller, Franklyn B.: Three-Dimensional, Unsteady-Lift Problems in High-Speed Flight - Basic Concepts. TN 2256, December 1950.
- Lampert, Seymour: Rolling and Yawing Moments for Swept-Back Wings in Sideslip at Supersonic Speeds. TN 2262, January 1951.
- Adams, Gaynor J.: Theoretical Damping in Roll and Rolling Effectiveness of Slender Cruciform Wings. TN 2270, January 1951.
- Spreiter, John R.: Similarity Laws for Transonic Flow about Wings of Finite Span. TN 2273, January 1951.
- DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.
- Sivells, James C.: An Improved Approximate Method for Calculating Lift Distributions Due to Twist. TN 2282, January 1951.
- Sivells, James C. and Westrick, Gertrude C.: Method for Calculating Lift Distributions for Unswept Wings with Flaps or Ailerons by Use of Nonlinear Section Lift Data. TN 2283, January 1951.
- Hopkins, Edward J.: Lift, Pitching Moment, and Span Load Characteristics of Wings at Low Speed as Affected by Variations of Sweep and Aspect Ratio. TN 2284, January 1951.
- Ribner, Herbert S.: Damping in Roll of Cruciform and Some Related Delta Wings at Supersonic Speeds. TN 2285, February 1951.
- Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Lift and Pitching Derivatives of Thin Sweptback Tapered Wings with Streamwise Tips and Subsonic Leading Edges at Supersonic Speeds. TN 2294, February 1951.
- Lomax, Harvard and Sluder, Loma: Chordwise and Compressibility Corrections to Slender-Wing Theory. TN 2295, February 1951.
- Skoog, Richard B. and Brown, Harvey H.: A Method for the Determination of the Spanwise Load Distribution of a Flexible Swept Wing at Subsonic Speeds. TN 2222, March 1951.
- Harmon, Sidney M.: Correspondence Flows for Wings in Linearized Potential Fields at Subsonic and Supersonic Speeds. TN 2303, March 1951.
- Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Supersonic Lift and Pitching Moment of Thin Sweptback Tapered Wings Produced by Constant Vertical Acceleration. Subsonic Leading Edges and Supersonic Trailing Edges. TN 2315, March 1951.
- Chang, Chieh-Chien: Applications of Von Karman's Integral Method in Supersonic Wing Theory. TN 2317, March 1951.
- Chang, Chieh-Chien: Transient Aerodynamic Behavior of an Airfoil Due to Different Arbitrary Modes of Non-stationary Motions in a Supersonic Flow. TN 2333, April 1951.
- Diederich, Franklin W.: A Plan-Form Parameter for Correlating Certain Aerodynamic Characteristics of Swept Wings. TN 2335, April 1951.
- Piland, Robert O.: Some Theoretical Characteristics of Trapezoidal Wings in Supersonic Flow and a Comparison of Several Wing-Flap Combinations. TN 2336, April 1951.
- Harmon, Sidney M.: Method for Calculating Downwash Field Due to Lifting Surfaces at Subsonic and Supersonic Speeds. TN 2344, April 1951.

Theory - Complete Wings (Cont.)

Diederich, Franklin W.: Charts and Tables for Use in Calculations of Downwash of Wings of Arbitrary Plan Form. TN 2353, May 1951.

WING VARIABLES
(1.2.2.2)

Lovell, J. Calvin and Lipson, Stanley: An Analysis of the Effect of Lift-Drag Ratio and Stalling Speed on Landing-Flare Characteristics. TN 1930, September 1949.

Cohen, Doris: Theoretical Loading at Supersonic Speeds of Flat Swept-Back Wings with Interacting Trailing and Leading Edges. TN 1991, December 1949.

Lagerstrom, P. A.: Linearized Supersonic Theory of Conical Wings. TN 1685, January 1950.

Gendler, Sel and Johnson, Donald F.: Determination of Minimum Moments of Inertia of Arbitrarily Shaped Areas, Such as Hollow Turbine Blades. RM E9H10, February 1950.

Vincenti, Walter G.: Comparison between Theory and Experiment for Wings at Supersonic Speeds. TN 2100, June 1950.

Michael, William H., Jr.: Analysis of the Effects of Wing Interference on the Tail Contributions to the Rolling Derivatives. TN 2332, April 1951.

Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

Profiles
(1.2.2.2.1)

Sivells, James C. and Spooner, Stanley H.: Investigation in the Langley 19-Foot Pressure Tunnel of Two Wings of NACA 65-210 and 64-210 Airfoil Sections with Various Type Flaps. Rept. 942, 1949.

Hassell, James L. and Bennett, Charles V.: The Dynamic Lateral Control Characteristics of Airplane Models Having Unswept Wings with Round- and Sharp-Leading-Edge Sections. TN 2219, November 1950.

Aspect Ratio
(1.2.2.2.2)

Hamilton, William T. and Nelson, Warren H.: Summary Report on the High-Speed Characteristics of Six Model Wings having NACA 651-Series Sections. Rept. 877, 1947.

Heaslet, Max. A.; Lomax, Harvard; and Jones, Arthur L.: Volterra's Solution of the Wave Equation as Applied to Three-Dimensional Supersonic Airfoil Problems. Rept. 889, 1947.

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.

Adler, Alfred A.: Effects of Combinations of Aspect Ratio and Sweepback at High Subsonic Mach Numbers. RM L7C24, June 1947.

Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.

Swanson, Robert S. and Crandall, Stewart M.: Lifting-Surface-Theory Aspect-Ratio Corrections to the Lift and Hinge-Moment Parameters for Full-Span Elevators on Horizontal Tail Surfaces. Rept. 911, 1948.

DeYoung, John and Harper, Charles W.: Theoretical Symmetric Span Loading at Subsonic Speeds for Wings having Arbitrary Plan Forms. Rept. 921, 1948.

Stack, John and Lindsey, W. F.: Characteristics of Low-Aspect-Ratio Wings at Supercritical Mach Numbers. Rept. 922, 1949.

Aspect Ratio - Complete Wings (Cont.)

- Harmon, Sidney M.: Stability Derivatives of Thin Rectangular Wings at Supersonic Speeds. Wing Diagonals ahead of Tip Mach Lines. Rept. 925, 1949.
- Harmon, Sidney M.: Theoretical Relations between the Stability Derivatives of a Wing in Direct and in Reverse Supersonic Flow. TN 1943, September 1949.
- Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.
- Piland, Robert O.: Summary of the Theoretical Lift, Damping-in-Roll, and Center-of-Pressure Characteristics of Various Wing Plan Forms at Supersonic Speeds. TN 1977, October 1949.
- Cohen, Doris: Theoretical Loading at Supersonic Speeds of Flat Swept-Back Wings with Interacting Trailing and Leading Edges. TN 1991, December 1949.
- Goodman, Alex and Fisher, Lewis R.: Investigation at Low Speeds of the Effect of Aspect Ratio and Sweep on Rolling Stability Derivatives of Untapered Wings. Rept. 968, 1950.
- Bird, John D.: Some Theoretical Low-Speed Span Loading Characteristics of Swept Wings in Roll and Sideslip. Rept. 969, 1950.
- Malvestuto, Frank S., Jr.; Margolis, Kenneth; and Ribner, Herbert S.: Theoretical Lift and Damping in Roll at Supersonic Speeds of Thin Sweptback Tapered Wings with Streamwise Tips, Subsonic Leading Edges and Supersonic Trailing Edges. Rept. 970, 1950.
- Malvestuto, Frank S., Jr. and Margolis, Kenneth: Theoretical Stability Derivatives of Thin Sweptback Wings Tapered to a Point with Sweptback or Sweptforward Trailing Edges for a Limited Range of Supersonic Speeds. Rept. 971, 1950.
- Tucker, Warren A. and Nelson, Robert L.: The Effect of Torsional Flexibility on the Rolling Characteristics at Supersonic Speeds of Tapered Unswept Wings. Rept. 972, 1950.
- Jones, Arthur L. and Alksne, Alberta: The Load Distribution Due to Sideslip on Triangular, Trapezoidal, and Related Plan Forms in Supersonic Flow. TN 2007, January 1950.
- Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Swept-back Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.
- DeYoung, John: Spanwise Loading for Wings and Control Surfaces of Low Aspect Ratio. TN 2011, January 1950.
- Margolis, Kenneth: Theoretical Lift and Damping in Roll of Thin Sweptback Tapered Wings with Raked-In and Cross-Stream Wing Tips at Supersonic Speeds. Subsonic Leading Edges. TN 2048, March 1950.
- Watkins, Charles E.: Effect of Aspect Ratio on the Air Forces and Moments of Harmonically Oscillating Thin Rectangular Wings in Supersonic Potential Flow. TN 2064, April 1950.
- Cohen, Doris: Formulas and Charts for the Supersonic Lift and Drag of Flat Swept-Back Wings with Interacting Leading and Trailing Edges. TN 2093, May 1950.
- Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.
- Margolis, Kenneth: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Subsonic Leading Edges. TN 2122, June 1950.

Aspect Ratio - Complete Wings (Cont.)

DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.

Harmon, Sidney M. and Martin, John C.: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Supersonic Leading Edges. TN 2156, July 1950.

Horton, Elmer A.; Loftin, Laurence K., Jr.; and Racisz, Stanley F.: Analysis of the Effects of Boundary-Layer Control on the Power-Off Landing Performance Characteristics of a Liaison Type of Airplane. TN 2143, August 1950.

Riebe, John M. and Watson, James M.: The Effect of End Plates on Swept Wings at Low Speed. TN 2229, November 1950.

DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.

Hopkins, Edward J.: Lift, Pitching Moment, and Span Load Characteristics of Wings at Low Speed as Affected by Variations of Sweep and Aspect Ratio. TN 2284, January 1951.

Lomax, Harvard and Sluder, Loma: Chordwise and Compressibility Corrections to Slender-Wing Theory. TN 2295, February 1951.

Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Lift and Pitching Derivatives of Thin Sweptback Tapered Wings with Streamwise Tips and Subsonic Leading Edges at Supersonic Speeds. TN 2294, February 1951.

Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Supersonic Lift and Pitching Moment of Thin Sweptback Tapered Wings Produced by Constant Vertical Acceleration. Subsonic Leading Edges and Supersonic Trailing Edges. TN 2315, March 1951.

Diederich, Franklin W.: A Plan-Form Parameter for Correlating Certain Aerodynamic Characteristics of Swept Wings. TN 2335, April 1951.

Fischel, Jack and Hagerman, John R.: Effect of Aspect Ratio and Sweepback on the Low-Speed Lateral Control Characteristics of Untapered Low-Aspect-Ratio Wings Equipped with Retractable Ailerons. TN 2347, May 1951.

Naeseth, Rodger L. and O'Hare, William M.: Effect of Aspect Ratio on the Low-Speed Lateral Control Characteristics of Unswept Untapered Low-Aspect-Ratio Wings. TN 2348, May 1951.

Sweep
(1.2.2.2.3)

Van Dyke, Milton D.: Aerodynamic Characteristics Including Scale Effects of Several Wings and Bodies alone and in Combination at a Mach Number of 1.53. RM A6K22, December 1946.

Garrick, I. E. and Rubinow, S. I.: Theoretical Study of Air Forces on an Oscillating or Steady Thin Wing in a Supersonic Main Stream. Rept. 872, 1947.

Heaslet, Max. A.; Lomax, Harvard; and Jones, Arthur L.: Volterra's Solution of the Wave Equation as Applied to Three-Dimensional Supersonic Airfoil Problems. Rept. 889, 1947.

Wilson, Herbert A., Jr. and Lovell, J. Calvin: Full-Scale Investigation of the Maximum Lift and Flow Characteristics of an Airplane having Approximately Triangular Plan Form. RM L6K20, February 1947.

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.

Adler, Alfred A.: Effects of Combinations of Aspect Ratio and Sweepback at High Subsonic Mach Numbers. RM L7C24, June 1947.

Sweep - Complete Wings (Cont.)

- Liccini, Luke L.: Effects of 45° Sweep-back on the High-Speed Characteristics of a Wing having a Modified NACA 16-012 Airfoil Section. RM L6K18a, July 1947.
- Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.
- Jones, Robert T.: Subsonic Flow over Thin Oblique Airfoils at Zero Lift. Rept. 902, 1948.
- DeYoung, John and Harper, Charles W.: Theoretical Symmetric Span Loading at Subsonic Speeds for Wings Having Arbitrary Plan Forms. Rept. 921, 1948.
- Harmon, Sidney M.: Theoretical Relations between the Stability Derivatives of a Wing in Direct and in Reverse Supersonic Flow. TN 1943, September 1949.
- Kueth, A. M.; McKee, P. B.; and Curry, W. H.: Measurements in the Boundary Layer of a Yawed Wing. TN 1946, September 1949.
- Dods, Jules B., Jr.: Wind-Tunnel Investigation of Horizontal Tails. V - 45° Swept-Back Plan Form of Aspect Ratio 2. RM A9D05, September 1949.
- Ellis, Macon C., Jr. and Hasel, Lowell E.: Preliminary Investigation at Supersonic Speeds of Triangular and Sweptback Wings. TN 1955, October 1949.
- Reisert, Thomas D.: Gust-Tunnel Investigation of a Flexible-Wing Model with Semichord Line Swept Back 45°. TN 1959, October 1949.
- Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.
- Piland, Robert O.: Summary of the Theoretical Lift, Damping-in-Roll, and Center-of-Pressure Characteristics of Various Wing Plan Forms at Supersonic Speeds. TN 1977, October 1949.
- Cohen, Doris: Theoretical Loading at Supersonic Speeds of Flat Swept-Back Wings with Interacting Trailing and Leading Edges. TN 1991, December 1949.
- Lomax, Harvard and Heaslet, Max. A.: Linearized Lifting-Surface Theory for Swept-Back Wings with Slender Plan Forms. TN 1992, December 1949.
- Goodman, Alex and Fisher, Lewis R.: Investigation at Low Speeds of the Effect of Aspect Ratio and Sweep on Rolling Stability Derivatives of Untapered Wings. Rept. 968, 1950.
- Bird, John D.: Some Theoretical Low-Speed Span Loading Characteristics of Swept Wings in Roll and Sideslip. Rept. 969, 1950.
- Malvestuto, Frank S., Jr.; Margolis, Kenneth; and Ribner, Herbert S.: Theoretical Lift and Damping in Roll at Supersonic Speeds of Thin Sweptback Tapered Wings with Streamwise Tips, Subsonic Leading Edges and Supersonic Trailing Edges. Rept. 970, 1950.
- Malvestuto, Frank S., Jr. and Margolis, Kenneth: Theoretical Stability Derivatives of Thin Sweptback Wings Tapered to a Point with Sweptback or Sweptforward Trailing Edges for a Limited Range of Supersonic Speeds. Rept. 971, 1950.
- Mathews, Charles W. and Thompson, Jim Rogers: Comparative Drag Measurements at Transonic Speeds of Rectangular and Sweptback NACA 65-009 Airfoils Mounted on a Freely Falling Body. Rept. 988, 1950.
- Jones, Arthur L. and Alksne, Alberta: The Load Distribution Due to Sideslip on Triangular, Trapezoidal, and Related Plan Forms in Supersonic Flow. TN 2007, January 1950.

Sweep - Complete Wings (Cont.)

- Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Swept-back Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.
- Brewer, Jack D. and Lichtenstein, Jacob H.: Effect of Horizontal Tail on Low-Speed Static Lateral Stability Characteristics of a Model having 45° Sweptback Wing and Tail Surfaces. TN 2010, January 1950.
- Margolis, Kenneth: Theoretical Lift and Damping in Roll of Thin Swept-back Tapered Wings with Raked-In and Cross-Stream Wing Tips at Supersonic Speeds. Subsonic Leading Edges. TN 2048, March 1950.
- Cohen, Doris: Formulas and Charts for the Supersonic Lift and Drag of Flat Swept-Back Wings with Interacting Leading and Trailing Edges. TN 2093, May 1950.
- Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.
- Barmby, J. G.; Cunningham, H. J.; and Garrick, I. E.: Study of Effects of Sweep on the Flutter of Cantilever Wings. TN 2121, June 1950.
- Margolis, Kenneth: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Subsonic Leading Edges. TN 2122, June 1950.
- DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.
- Harmon, Sidney M. and Martin, John C.: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Supersonic Leading Edges. TN 2156, July 1950.
- Dannenberg, Robert E.: Measurements of Section Characteristics of a 45° Swept Wing Spanning a Rectangular Low-Speed Wind Tunnel as Affected by the Tunnel Walls. TN 2160, August 1950.
- Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of a 45° Sweptback Untapered Semispan Wing of Aspect Ratio 1.59 Equipped with Various 25-Percent-Chord Plain Flaps. TN 2169, August 1950.
- Pierce, Harold B.: Gust-Tunnel Investigation of a Wing Model with Semi-chord Line Swept Back 60°. TN 2204, October 1950.
- Shanks, Robert E.: Model Flight Investigation of a Nonlifting Winged Tow Target. RM L50H30, October 1950.
- Riebe, John M. and Watson, James M.: The Effect of End Plates on Swept Wings at Low Speeds. TN 2229, November 1950.
- Lampert, Seymour: Rolling and Yawing Moments for Swept-Back Wings in Sideslip at Supersonic Speeds. TN 2262, January 1951.
- DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.
- Hopkins, Edward J.: Lift, Pitching Moment, and Span Load Characteristics of Wings at Low Speed as Affected by Variations of Sweep and Aspect Ratio. TN 2284, January 1951.
- Dods, Jules B., Jr.: Estimation of Low-Speed Lift and Hinge-Moment Parameters for Full-Span Trailing-Edge Flaps on Lifting Surfaces with and without Sweepback. TN 2288, February 1951.

Sweep - Complete Wings (Cont.)

Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Lift and Pitching Derivatives of Thin Sweptback Tapered Wings with Streamwise Tips and Subsonic Leading Edges at Supersonic Speeds. TN 2294, February 1951.

Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Supersonic Lift and Pitching Moment of Thin Sweptback Tapered Wings Produced by Constant Vertical Acceleration. Subsonic Leading Edges and Supersonic Trailing Edges. TN 2315, March 1951.

Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of Lateral Control Characteristics of an Untapered 45° Sweptback Semispan Wing of Aspect Ratio 1.59 Equipped with Various 25-Percent-Chord Plain Ailerons. TN 2316, March 1951.

Diederich, Franklin W.: A Plan-Form Parameter for Correlating Certain Aerodynamic Characteristics of Swept Wings. TN 2335, April 1951.

Harmon, Sidney M.: Method for Calculating Downwash Field Due to Lifting Surfaces at Subsonic and Supersonic Speeds. TN 2344, April 1951.

Struminsky, V. V.: Sideslip in a Viscous Compressible Gas. TM 1276, April 1951.

Fischel, Jack and Hagerman, John R.: Effect of Aspect Ratio and Sweepback on the Low-Speed Lateral Control Characteristics of Untapered Low-Aspect-Ratio Wings Equipped with Retractable Ailerons. TN 2347, May 1951.

Taper and Twist
(1.2.2.2.4)

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings Having Various Plan Forms. RM L7D23, May 1947.

Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.

DeYoung, John and Harper, Charles W.: Theoretical Symmetric Span Loading at Subsonic Speeds for Wings Having Arbitrary Plan Form. Rept. 921, 1948.

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Harmon, Sidney M.: Theoretical Relations between the Stability Derivatives of a Wing in Direct and in Reverse Supersonic Flow. TN 1943, September 1949.

Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.

Piland, Robert O.: Summary of the Theoretical Lift, Damping-in-Roll, and Center-of-Pressure Characteristics of Various Wing Plan Forms at Supersonic Speeds. TN 1977, October 1949.

Bird, John D.: Some Theoretical Low-Speed Span Loading Characteristics of Swept Wings in Roll and Sideslip. Rept. 969, 1950.

Malvestuto, Frank S., Jr.; Margolis, Kenneth; and Ribner, Herbert S.: Theoretical Lift and Damping in Roll at Supersonic Speeds of Thin Sweptback Tapered Wings with Streamwise Tips, Subsonic Leading Edges and Supersonic Trailing Edges. Rept. 970, 1950.

Malvestuto, Frank S., Jr. and Margolis, Kenneth: Theoretical Stability Derivatives of Thin Sweptback Wings Tapered to a Point with Sweptback or Sweptforward Trailing Edges for a Limited Range of Supersonic Speeds. Rept. 971, 1950.

Taper and Twist - Complete Wings (Cont.)

- Tucker, Warren A. and Nelson, Robert L.: The Effect of Torsional Flexibility on the Rolling Characteristics at Supersonic Speeds of Tapered Unswept Wings. Rept. 972, 1950.
- Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Swept-back Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.
- Margolis, Kenneth: Theoretical Lift and Damping in Roll of Thin Swept-back Tapered Wings and Raked-In and Cross-Stream Wing Tips at Supersonic Speeds. Subsonic Leading Edges. TN 2048, March 1950.
- Cohen, Doris: Formulas and Charts for the Supersonic Lift and Drag of Flat Swept-Back Wings with Interacting Leading and Trailing Edges. TN 2093, May 1950.
- Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.
- Margolis, Kenneth: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Subsonic Leading Edges. TN 2122, June 1950.
- Martin, John C.: The Calculation of Downwash behind Wings of Arbitrary Plan Form at Supersonic Speeds. TN 2135, July 1950.
- Harmon, Sidney M. and Martin, John C.: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Supersonic Leading Edges. TN 2156, July 1950.

Riebe, John M. and Watson, James M.: The Effect of End Plates on Swept Wings at Low Speed. TN 2229, November 1950.

Lampert, Seymour: Rolling and Yawing Moments for Swept-Back Wings in Sideslip at Supersonic Speeds. TN 2262, January 1951.

Sivells, James C.: An Improved Approximate Method for Calculating Lift Distributions Due to Twist. TN 2282, January 1951.

Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Lift and Pitching Derivatives of Thin Sweptback Tapered Wings with Streamwise Tips and Subsonic Leading Edges at Supersonic Speeds. TN 2294, February 1951.

Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Supersonic Lift and Pitching Moment of Thin Sweptback Tapered Wings Produced by Constant Vertical Acceleration. Subsonic Leading Edges and Supersonic Trailing Edges. TN 2315, March 1951.

Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

**Surface Conditions
(1.2.2.2.6)**

Nissen, James M.; Gadeberg, Burnett L.; and Hamilton, William T.: Correlation of the Drag Characteristics of a P-51B Airplane Obtained from High-Speed Wind Tunnel and Flight Tests. Rept. 916, 1948.

Sivells, James C. and Spooner, Stanley H.: Investigation in the Langley 19-Foot Pressure Tunnel of Two Wings of NACA 65-210 and 64-210 Airfoil Sections with Various Type Flaps. Rept. 942, 1949.

Surface Conditions - Complete
Wings (Cont.)

Dods, Jules B., Jr.: Wind-Tunnel Investigation of Horizontal Tails. V - 45° Swept-Back Plan Form of Aspect Ratio 2. RM A9D05, September 1949.

Furlong, G. Chester and Fitzpatrick, James E.: Effects of Mach Number up to 0.34 and Reynolds Number up to 8×10^6 on the Maximum Lift Coefficient of a Wing of NACA 66-Series Airfoil Sections. TN 2251, December 1950.

Dihedral
(1. 2. 2. 2. 7)

Riebe, John M. and Watson, James M.: The Effect of End Plates on Swept Wings at Low Speed. TN 2229, November 1950.

HIGH LIFT DEVICES
(1. 2. 2. 3)

Hamilton, William T. and Nelson, Warren H.: Summary Report on the High-Speed Characteristics of Six Model Wings having NACA 651-Series Sections. Rept. 877, 1947.

Stüper: Flight Experiences and Tests on Two Airplanes with Suction Slots. TM 1232, January 1950.

Sivells, James and Westrick, Gertrude C.: Method for Calculating Lift Distributions for Unswept Wings with Flaps or Ailerons by Use of Nonlinear Section Lift Data. TN 2283, January 1951.

Trailing Edge Flaps
(1. 2. 2. 3. 1)

Sawyer, Richard H.: Flight Measurements of the Lateral Control Characteristics of Narrow-Chord Ailerons on the Trailing Edge of a Full-Span Slotted Flap. Rept. 883, 1947.

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.

Sivells, James C. and Spooner, Stanley H.: Investigation in the Langley 19-Foot Pressure Tunnel of Two Wings of NACA 65-210 and 64-210 Airfoil Sections with Various Type Flaps. Rept. 942, 1949.

Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.

Lovell, J. Calvin and Lipson, Stanley: An Analysis of the Effect of Lift-Drag Ratio and Stalling Speed on Landing-Flare Characteristics. TN 1930, September 1949.

Dods, Jules B., Jr.: Wind-Tunnel Investigation of Horizontal Tails. V - 45° Swept-Back Plan Form of Aspect Ratio 2. RM A9D05, September 1949.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of an Unswept Untapered Semispan Wing of Aspect Ratio 3.13 Equipped with Various 25-Percent-Chord Plain Flaps. TN 2080, April 1950.

Haefeli, Rudolph C.; Mirels, Harold; and Cummings, John L.: Charts for Estimating Downwash behind Rectangular, Trapezoidal, and Triangular Wings at Supersonic Speeds. TN 2141, August 1950.

Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of a 45° Sweptback Untapered Semispan Wing of Aspect Ratio 1.59 Equipped with Various 25-Percent-Chord Plain Flaps. TN 2169, August 1950.

Trailing-Edge Flaps - Complete Wings
(Cont.)

Kainer, Julian H. and Marte, Jack E.: Theoretical Supersonic Characteristics of Inboard Trailing-Edge Flaps having Arbitrary Sweep and Taper. Mach Lines behind Flap Leading and Trailing Edges. TN 2205, October 1950.

Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls Having Leading and Trailing Edges Swept ahead of the Mach Lines. TN 2221, November 1950.

Furlong, G. Chester and Fitzpatrick, James E.: Effects of Mach Number up to 0.34 and Reynolds Number up to 8×10^6 on the Maximum Lift Coefficient of a Wing of NACA 66-Series Airfoil Sections. TN 2251, December 1950.

Dods, Jules B., Jr.: Estimation of Low-Speed Lift and Hinge-Moment Parameters for Full-Span Trailing-Edge Flaps on Lifting Surfaces with and without Sweepback. TN 2288, February 1951.

Slots and Slats
(1.2.2.3.2)

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

Queijo, M. J. and Wolhart, Walter D.: Experimental Investigation of the Effect of Vertical-Tail Size and Length and of Fuselage Shape and Length on the Static Lateral Stability Characteristics of a Model with 45° Sweptback Wing and Tail Surfaces. TN 2168, August 1950.

Letko, William: Effect of Vertical-Tail Area and Length on the Yawing Stability Characteristics of a Model Having a 45° Sweptback Wing. TN 2358, May 1951.

CONTROLS
(1.2.2.4)

Boddy, Lee E. and Williams, Walter C.: A Summary and Analysis of Data on Dive-Recovery Flaps. RM A7F09, June 1947.

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

DeYoung, John: Spanwise Loading for Wings and Control Surfaces of Low Aspect Ratio. TN 2011, January 1950.

DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.

Goin, Kenneth L.: Equations and Charts for the Rapid Estimation of Hinge-Moment and Effectiveness Parameters for Trailing-Edge Controls having Leading and Trailing Edges Swept ahead of the Mach Lines. TN 2221, November 1950.

DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.

Sivells, James C. and Westrick, Gertrude C.: Method for Calculating Lift Distributions for Unswept Wings with Flaps or Ailerons by Use of Nonlinear Section Lift Data. TN 2283, January 1951.

Flap Type
(1.2.2.4.1)

Toll, Thomas A.: Summary of Lateral-Control Research. Rept. 868, 1947.

Sawyer, Richard H.: Flight Measurements of the Lateral Control Characteristics of Narrow-Chord Ailerons on the Trailing Edge of a Full-Span Slotted Flap. Rept. 883, 1947.

Flap Type Controls - Complete Wings
(Cont.)

Purser, Paul E. and Spearman,
M. Leroy: Wind-Tunnel Tests at
Low Speed of Swept and Yawed
Wings having Various Plan Forms.
RM L7D23, May 1947.

Swanson, Robert S. and Crandall,
Stewart M.: Lifting-Surface-
Theory Aspect-Ratio Corrections
to the Lift and Hinge-Moment
Parameters for Full-Span Ele-
vators on Horizontal Tail Sur-
faces. Rept. 911, 1948.

Tucker, Warren A. and Nelson,
Robert L.: Theoretical Character-
istics in Supersonic Flow of Two
Types of Control Surfaces on Tri-
angular Wings. Rept. 939, 1949.

Dods, Jules B., Jr.: Wind-Tunnel In-
vestigation of Horizontal Tailles.
V - 45° Swept-Back Plan Form of
Aspect Ratio 2. RM A9D05,
September 1949.

Johnson, Harold S. and Hagerman,
John R.: Wind-Tunnel Investiga-
tion at Low Speed of an Unswept
Untapered Semispan Wing of As-
pect Ratio 3.13 Equipped with
Various 25-Percent-Chord Plain
Flaps. TN 2080, April 1950.

Carpenter, Paul J. and Paulnock,
Russell S.: Hovering and Low-
Speed Performance and Control
Characteristics of an Aerodynamic-
Servocontrolled Helicopter Rotor
System as Determined on the
Langley Helicopter Tower. TN
2086, May 1950.

Lovell, Powell M., Jr. and Stassi,
Paul P.: A Comparison of the
Lateral Controllability with Flap
and Plug Ailerons on a Sweptback-
Wing Model. TN 2089, May 1950.

Johnson, Harold S. and Hagerman,
John R.: Wind-Tunnel Investiga-
tion at Low Speed of a 45° Swept-
back Untapered Semispan Wing of
Aspect Ratio 1.59 Equipped with
Various 25-Percent-Chord Plain
Flaps. TN 2169, August 1950.

Johnson, Harold S. and Hagerman,
John R.: Wind-Tunnel Investigation
at Low Speed of the Lateral Control
Characteristics of an Unswept Un-
tapered Semispan Wing of Aspect
Ratio 3.13 Equipped with Various
25-Percent-Chord Plain Ailerons.
TN 2199, October 1950.

Goin, Kenneth L.: Equations and Charts
for the Rapid Estimation of Hinge-
Moment and Effectiveness Param-
eters for Trailing-Edge Controls
having Leading and Trailing Edges
Swept ahead of the Mach Lines. TN
2221, November 1950.

Riebe, John M. and Watson, James M.:
The Effect of End Plates on Swept
Wings at Low Speed. TN 2229,
November 1950.

Lovell, Powell M., Jr.: A Comparison
of the Lateral Controllability with
Flap and Plug Ailerons on a Swept-
back-Wing Model Having Full-Span
Flaps. TN 2247, December 1950.

Sivells, James C.: An Improved Ap-
proximate Method for Calculating
Lift Distributions Due to Twist.
TN 2282, January 1951.

Dods, Jules B., Jr.: Estimation of
Low-Speed Lift and Hinge-Moment
Parameters for Full-Span Trailing-
Edge Flaps on Lifting Surfaces with
and without Sweepback. TN 2288,
February 1951.

Johnson, Harold S. and Hagerman,
John R.: Wind-Tunnel Investigation
at Low Speed of Lateral Control
Characteristics of an Untapered
45° Sweptback Semispan Wing of
Aspect Ratio 1.59 Equipped with
Various 25-Percent-Chord Plain
Ailerons. TN 2316, March 1951.

Piland, Robert O.: Some Theoretical
Characteristics of Trapezoidal
Wings in Supersonic Flow and a
Comparison of Several Wing-Flap
Combinations. TN 2336, April
1951.

Flap Type Controls - Complete Wings
(Cont.)

Naeseth, Rodger L. and O'Hare,
William M.: Effect of Aspect Ratio
on the Low-Speed Lateral Control
Characteristics of Unswept Un-
tapered Low-Aspect-Ratio Wings.
TN 2348, May 1951.

Spoiler
(1. 2. 2. 4. 2)

Toll, Thomas A.: Summary of Lateral-
Control Research. Rept. 868,
1947.

Lovell, Powell M., Jr. and Stassi,
Paul P.: A Comparison of the
Lateral Controllability with Flap
and Plug Ailerons on a Sweptback-
Wing Model. TN 2089, May 1950.

Riebe, John M. and Watson, James M.:
The Effect of End Plates on Swept
Wings at Low Speed. TN 2229,
November 1950.

Lovell, Powell M., Jr.: A Comparison
of the Lateral Controllability with
Flap and Plug Ailerons on a
Sweptback-Wing Model having
Full-Span Flaps. TN 2247,
December 1950.

Fischel, Jack and Hagerman, John R.:
Effect of Aspect Ratio and Sweep-
back on the Low-Speed Lateral
Control Characteristics of Un-
tapered Low-Aspect-Ratio Wings
Equipped with Retractable Ailerons.
TN 2347, May 1951.

REYNOLDS NUMBER EFFECTS
(1. 2. 2. 5)

Van Dyke, Milton D.: Aerodynamic
Characteristics Including Scale
Effects of Several Wings and Bodies
alone and in Combination at a Mach
Number of 1.53. RM A6K22,
December 1946.

Lees, Lester: The Stability of the
Laminar Boundary Layer in a
Compressible Fluid. Rept. 876,
1947.

Nissen, James M.; Gadeberg, Burnett L.;
and Hamilton, William T.: Correla-
tion of the Drag Characteristics of a
P-51B Airplane Obtained from High-
Speed Wind Tunnel and Flight Tests.
Rept. 916, 1948.

Sivells, James C. and Spooner,
Stanley H.: Investigation in the
Langley 19-Foot Pressure Tunnel
of Two Wings of NACA 65-210 and
64-210 Airfoil Sections with Various
Type Flaps. Rept. 942, 1949.

Furlong, G. Chester and Fitzpatrick,
James E.: Effects of Mach Number
up to 0.34 and Reynolds Number up
to 8×10^6 on the Maximum Lift Co-
efficient of a Wing of NACA 66-
Series Airfoil Sections. TN 2251,
December 1950.

MACH NUMBER EFFECTS
(1. 2. 2. 6)

Lees, Lester: The Stability of the
Laminar Boundary Layer in a
Compressible Fluid. Rept. 876,
1947.

Hamilton, William T. and Nelson,
Warren H.: Summary Report on
the High-Speed Characteristics of
Six Model Wings having NACA
651-Series Sections. Rept. 877,
1947.

Heaslet, Max. A.; Lomax, Harvard;
and Jones, Arthur L.: Volterra's
Solution of the Wave Equation as
Applied to Three-Dimensional
Supersonic Airfoil Problems.
Rept. 889, 1947.

Adler, Alfred A.: Effects of Combina-
tions of Aspect Ratio and Sweepback
at High Subsonic Mach Numbers.
RM L7C24, June 1947.

Boddy, Lee E. and Williams, Walter C.:
A Summary and Analysis of Data
on Dive-Recovery Flaps. RM
A7F09, June 1947.

Liccini, Luke L.: Effects of 45° Sweep-
back on the High-Speed Character-
istics of a Wing Having a Modified
NACA 16, -12 Airfoil Section. RM
L6K18a, July 1947.

Mach No. Effects - Complete Wings (Cont.)

- Jessen, Henry, Jr.: A Summary Report on the Effects of Mach Number on the Span Load Distribution on Wings of Several Models. RM A7C28, July 1947.
- Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.
- Jones, Robert T.: Subsonic Flow over Thin Oblique Airfoils at Zero Lift. Rept. 902, 1948.
- Ribner, Herbert S. and Malvestuto, Frank S., Jr.: Stability Derivatives of Triangular Wings at Supersonic Speeds. Rept. 908, 1948.
- Nissen, James M.; Gadeberg, Burnett L.; and Hamilton, William T.: Correlation of the Drag Characteristics of a P-51B Airplane Obtained from High-Speed Wind Tunnel and Flight Tests. Rept. 916, 1948.
- Stack, John and Lindsey, W. F.: Characteristics of Low-Aspect-Ratio Wings at Supercritical Mach Numbers. Rept. 922, 1949.
- Harmon, Sidney M.: Stability Derivatives of Thin Rectangular Wings at Supersonic Speeds. Wing Diagonals ahead of Tip Mach Lines. Rept. 925, 1949.
- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Tucker, Warren A. and Nelson, Robert L.: Theoretical Characteristics in Supersonic Flow of Two Types of Control Surfaces on Triangular Wings. Rept. 939, 1949.
- Lomax, Harvard and Heaslet, Max. A.: Damping-in-Roll Calculations for Slender Swept-Back Wings and Slender Wing-Body Combinations. TN 1950, September 1949.
- Ellis, Macon C., Jr. and Hasel, Lowell E.: Preliminary Investigation at Supersonic Speeds of Triangular and Sweptback Wings. TN 1955, October 1949.
- Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.
- Aiken, William S., Jr. and Howard, Donald A.: A Comparison of Wing Loads Measured in Flight on a Fighter-Type Airplane by Strain-Gage and Pressure-Distribution Methods. TN 1967, November 1949.
- Castile, George E. and Herr, Robert W.: Some Effects of Density and Mach Number on the Flutter Speed of Two Uniform Wings. TN 1989, December 1949.
- Cohen, Doris: Theoretical Loading at Supersonic Speeds of Flat Swept-Back Wings with Interacting Trailing and Leading Edges. TN 1991, December 1949.
- Heaslet, Max. A. and Lomax, Harvard: The Calculation of Downwash behind Supersonic Wings with an Application to Triangular Plan Forms. Rept. 957, 1950.
- Malvestuto, Frank S., Jr.; Margolis, Kenneth; and Ribner, Herbert S.: Theoretical Lift and Damping in Roll at Supersonic Speeds of Thin Swept-back Tapered Wings with Streamwise Tips, Subsonic Leading Edges and Supersonic Trailing Edges. Rept. 970, 1950.
- Malvestuto, Frank S., Jr. and Margolis, Kenneth: Theoretical Stability Derivatives of Thin Sweptback Wings Tapered to a Point with Sweptback or Sweptforward Trailing Edges for a Limited Range of Supersonic Speeds. Rept. 971, 1950.
- Tucker, Warren A. and Nelson, Robert L.: The Effect of Torsional Flexibility on the Rolling Characteristics at Supersonic Speeds of Tapered Unswept Wings. Rept. 972, 1950.
- Mathews, Charles W. and Thompson Jim Rogers: Comparative Drag Measurements at Transonic Speeds of Rectangular and Sweptback NACA 65-009 Airfoils Mounted on a Freely Falling Body. Rept. 988, 1950.

Mach No. Effects - Complete Wings (Cont.)

- Jones, Arthur L. and Alksne, Alberta: The Load Distribution Due to Side-slip on Triangular, Trapezoidal, and Related Plan Forms in Supersonic Flow. TN 2007, January 1950.
- Kainer, Julian H.: Theoretical Calculations of the Supersonic Pressure Distribution and Wave Drag for a Limited Family of Tapered Swept-back Wings with Symmetrical Parabolic-Arc Sections at Zero Lift. TN 2009, January 1950.
- DeYoung, John: Spanwise Loading for Wings and Control Surfaces of Low Aspect Ratio. TN 2011, January 1950.
- Walker, Harold J. and Ballantyne, Mary B.: Pressure Distribution and Damping in Steady Roll at Supersonic Mach Numbers of Flat Swept-Back Wings with Subsonic Edges. TN 2047, March 1950.
- Margolis, Kenneth: Theoretical Lift and Damping in Roll of Thin Swept-back Tapered Wings with Raked-In and Cross-Stream Wing Tips at Supersonic Speeds. Subsonic Leading Edges. TN 2048, March 1950.
- Harper, Paul W. and Flanigan, Roy E.: The Effect of Rate of Change of Angle of Attack on the Maximum Lift of a Small Model. TN 2061, March 1950.
- Cohen, Doris: Formulas and Charts for the Supersonic Lift and Drag of Flat Swept-Back Wings with Interacting Leading and Trailing Edges. TN 2093, May 1950.
- Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.
- Barmby, J. G.; Cunningham, H. J.; and Garrick, I. E.: Study of Effects of Sweep on the Flutter of Cantilever Wings. TN 2121, June 1950.
- Margolis, Kenneth: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Subsonic Leading Edges. TN 2122, June 1950.
- Martin, John C.: The Calculation of Downwash behind Wings of Arbitrary Plan Form at Supersonic Speeds. TN 2135, July 1950.
- Tucker, Warren A. and Piland, Robert O.: Estimation of the Damping in Roll of Supersonic-Leading-Edge Wing-Body Combinations. TN 2151, July 1950.
- Harmon, Sidney M. and Martin, John C.: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Supersonic Leading Edges. TN 2156, July 1950.
- Walker, Harold J. and Ballantyne, Mary B.: Pressure Distribution and Damping in Steady Pitch at Supersonic Mach Numbers of Flat Swept-Back Wings having all Edges Subsonic. TN 2197, October 1950.
- Czarnecki, K. R. and Mueller, James N.: An Approximate Method of Calculating Pressures in the Tip Region of a Rectangular Wing of Circular-Arc Section at Supersonic Speeds. TN 2211, October 1950.
- Furlong, G. Chester and Fitzpatrick, James E.: Effects of Mach Number up to 0.34 and Reynolds Number up to 8×10^6 on the Maximum Lift Coefficient of a Wing of NACA 66-Series Airfoil Sections. TN 2251, December 1950.
- Carpenter, Paul J.: Effects of Compressibility on the Performance of Two Full-Scale Helicopter Rotors. TN 2277, January 1951.
- Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Lift and Pitching Derivatives of Thin Sweptback Tapered Wings with Streamwise Tips and Subsonic Leading Edges at Supersonic Speeds. TN 2294, February 1951.

Mach No. Effects - Complete Wings (Cont.)

Lomax, Harvard and Sluder, Loma:
Chordwise and Compressibility
Corrections to Slender-Wing
Theory. TN 2295, February 1951.

Smith, Donald W. and Heitmeyer,
John C.: Lift, Drag, and Pitching
Moment of Low-Aspect-Ratio
Wings at Subsonic and Supersonic
Speeds - Plane Triangular Wing of
Aspect Ratio 2 with NACA 0005-63
Section. RM A50K21, February
1951.

Malvestuto, Frank S., Jr. and Hoover,
Dorothy M.: Supersonic Lift and
Pitching Moment of Thin Sweptback
Tapered Wings Produced by Con-
stant Vertical Acceleration. Sub-
sonic Leading Edges and Super-
sonic Trailing Edges. TN 2315,
March 1951.

Diederich, Franklin W.: A Plan-Form
Parameter for Correlating Certain
Aerodynamic Characteristics of
Swept Wings. TN 2335, April 1951.

Piland, Robert O.: Some Theoretical
Characteristics of Trapezoidal
Wings in Supersonic Flow and a
Comparison of Several Wing-Flap
Combinations. TN 2336, April
1951.

WAKE
(1.2.2.7)

Heaslet, Max. A. and Lomax, Harvard:
The Calculation of Downwash be-
hind Supersonic Wings with an
Application to Triangular Plan
Forms. Rept. 957, 1950.

Mirels, Harold and Haefeli, Rudolph C.:
Line-Vortex Theory for Calcula-
tion of Supersonic Downwash.
Rept. 983, 1950.

Martin, John C.: The Calculation of
Downwash behind Wings of Arbi-
trary Plan Form at Supersonic
Speeds. TN 2135, July 1950.

Haefeli, Rudolph C.; Mirels, Harold;
and Cummings, John L.: Charts
for Estimating Downwash behind
Rectangular, Trapezoidal, and
Triangular Wings at Supersonic
Speeds. TN 2141, August 1950.

DeYoung, John: Theoretical Symmetric
Span Loading Due to Flap Deflection
for Wings of Arbitrary Plan Form
at Subsonic Speeds. TN 2278,
January 1951.

Harmon, Sidney M.: Correspondence
Flows for Wings in Linearized
Potential Fields at Subsonic and
Supersonic Speeds. TN 2303,
March 1951.

Michael, William H., Jr.: Analysis of
the Effects of Wing Interference on
the Tail Contributions to the Rolling
Derivatives. TN 2332, April 1951.

Harmon, Sidney M.: Method for Calcu-
lating Downwash Field Due to Lifting
Surfaces at Subsonic and Supersonic
Speeds. TN 2344, April 1951.

Diederich, Franklin W.: Charts and
Tables for Use in Calculations of
Downwash of Wings of Arbitrary
Plan Form. TN 2353, May 1951.

BOUNDARY LAYER
(1.2.2.8)

Stüper: Flight Experiences and Tests on
Two Airplanes with Suction Slots.
TM 1232, January 1950.

Vincenti, Walter G.: Comparison be-
tween Theory and Experiment for
Wings at Supersonic Speeds. TN
2100, June 1950.

Horton, Elmer A.; Loftin, Laurence K.,
Jr.; and Racisz, Stanley F.:
Analysis of the Effects of Boundary-
Layer Control on the Power-Off
Landing Performance Characteris-
tics of a Liaison Type of Airplane.
TN 2143, August 1950.

Moore, Franklin K.: Three-Dimensional
Compressible Laminar Boundary-
Layer Flow. TN 2279, March 1951.

Boundary Layer - Complete Wings (Cont.)

Mager, Artur: Generalization of
Boundary-Layer Momentum-
Integral Equations to Three-
Dimensional Flows Including
Those of Rotating System. TN
2310, March 1951.

Bodies

(1.3)

Soule, Harold V. and Sabol, Alexander P.: Development and Preliminary Investigation of a Method of Obtaining Hypersonic Aerodynamic Data by Firing Models through Highly Cooled Gases. TN 2120, July 1950.

Chapman, Dean R.: An Analysis of Base Pressure at Supersonic Velocities and Comparison with Experiment. TN 2137, July 1950.

THEORY

(1.3.1)

Spreiter, John R.: The Aerodynamic Forces on Slender Plane- and Cruciform-Wing and Body Combinations. Rept. 962, 1950.

Allen, H. Julian: Pressure Distribution and Some Effects of Viscosity on Slender Inclined Bodies of Revolution. TN 2044, March 1950.

Moore, Franklin: Linearized Supersonic Axially Symmetric Flow about Open-Nosed Bodies Obtained by Use of Stream Function. TN 2116, June 1950.

Ferri, Antonio: Supersonic Flow around Circular Cones at Angles of Attack. TN 2236, November 1950.

Ehret, Dorris M.; Rossow, Vernon J.; and Stevens, Victor I.: An Analysis of the Applicability of the Hypersonic Similarity Law to the Study of Flow about Bodies of Revolution at Zero Angle of Attack. TN 2250, December 1950.

Van Dyke, Milton D.: A Study of Second-Order Supersonic-Flow Theory. TN 2200, January 1951.

Cooper, Morton and Webster, Robert A.: The Use of an Uncalibrated Cone for Determination of Flow Angles and Mach Numbers at Supersonic Speeds. TN 2190, March 1951.

SHAPE VARIABLES

(1.3.2)

Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at Mach Number of 1.5. RM A7A31a, April 1947.

Jack, John R.: Theoretical Wave Drags and Pressure Distributions for Axially Symmetric Open-Nose Bodies. TN 2115, June 1950.

Wimbrow, William R. and Scherrer, Richard: Laminar-Boundary-Layer Heat-Transfer Characteristics of a Body of Revolution with a Pressure Gradient at Supersonic Speeds. TN 2148, August 1950.

FINENESS RATIO

(1.3.2.1)

Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at a Mach Number of 1.5. RM A7A31a, April 1947.

Matthews, Clarence W.: A Comparison of the Experimental Subsonic Pressure Distributions about Several Bodies of Revolution with Pressure Distributions Computed by Means of the Linearized Theory. RM L9F28, September 1949.

Fineness Ratio - Shape Variables (Cont.)

Queijo, M. J. and Wolhart, Walter D.: Experimental Investigation of the Effect of Vertical-Tail Size and Length and of Fuselage Shape and Length on the Static Lateral Stability Characteristics of a Model with 45° Sweptback Wing and Tail Surfaces. TN 2168, August 1950.

Ehret, Dorris M.; Rossow, Vernon J.; and Stevens, Victor I.: An Analysis of the Applicability of the Hypersonic Similarity Law to the Study of Flow about Bodies of Revolution at Zero Angle of Attack. TN 2250, December 1950.

Letko, William: Effect of Vertical-Tail Area and Length on the Yawing Stability Characteristics of a Model having a 45° Sweptback Wing. TN 2358, May 1951.

THICKNESS DISTRIBUTION
(1.3.2.3)

Van Dyke, Milton D.: Aerodynamic Characteristics Including Scale Effects of Several Wings and Bodies alone and in Combination at a Mach Number of 1.53. RM A6K22, December 1946.

Queijo, M. J. and Wolhart, Walter D.: Experimental Investigation of the Effect of Vertical-Tail Size and Length and of Fuselage Shape and Length on the Static Lateral Stability Characteristics of a Model with 45° Sweptback Wing and Tail Surfaces. TN 2168, August 1950.

SURFACE CONDITIONS
(1.3.2.4)

Van Dyke, Milton D.: Aerodynamic Characteristics Including Scale Effects of Several Wings and Bodies alone and in Combination at a Mach Number of 1.53. RM A6K22, December 1946.

Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at a Mach Number of 1.5. RM A7A31a, April 1947.

Wimbrow, William R.: Experimental Investigation of Temperature Recovery Factors on Bodies of Revolution at Supersonic Speeds. TN 1975, October 1949.

Jack, John R.: Theoretical Wave Drags and Pressure Distributions for Axially Symmetric Open-Nose Bodies. TN 2115, June 1950.

Tillmann, W.: Additional Measurements of the Drag of Surface Irregularities in Turbulent Boundary Layers. TM 1299, January 1951.

Gowan, William H., Jr. and Mulholland, Donald R.: Effectiveness of Thermal-Pneumatic Airfoil-Ice-Protection System. RM E50K10a, April 1951.

CANOPIES
(1.3.3)

Huston, Wilber B. and Skopinski, T. H.: Flight Investigation of the Pressure Distributions and Loads on a Front and Rear Sliding Canopy. RM L50B03, April 1950.

DUCTED BODIES
(1.3.4)

Moore, Franklin: Linearized Supersonic Axially Symmetric Flow about Open-Nosed Bodies Obtained by Use of Stream Function. TN 2116, June 1950.

NOSE SHAPE
(1.3.4.1)

Nichols, Mark R. and Keith, Arvid L., Jr.: Investigation of a Systematic Group of NACA 1-Series Cowlings with and without Spinners. Rept. 950, 1949.

Brödel, Walter: Theory of Plane, Symmetrical Inlet Diffusers. TM 1267, April 1950.

Ferri, Antonio and Nucci, Louis M.: Preliminary Investigation of a New Type of Supersonic Inlet. TN 2286, April 1951.

Internal Aerodynamics

(1.4)

Goldstein, Arthur W.: Analysis of the Performance of a Jet Engine from Characteristics of the Components. I - Aerodynamic and Matching Characteristics of the Turbine Component Determined with Cold Air. Rept. 878, 1947.

Sinnette, John T., Jr.: Some Methods of Analyzing the Effect of Basic Design Variables on Axial-Flow Compressor Performance. Rept. 901, 1948.

Wu, Chung-Hua: Survey of Available Information on Internal Flow Losses through Axial Turbomachines. RM E50J13, January 1951.

Henry, John R. and Bennett, J. Buel: Method for Calculation of Ram-Jet Performance. TN 2357, June 1951.

INLETS

(1.4.1)

Martin, Norman J. and Holzhauser, Curt A.: Analysis of Factors Influencing the Stability Characteristics of Symmetrical Twin-Intake Air-Induction Systems. TN 2049, March 1950.

Ruden, P.: Two-Dimensional Symmetrical Inlets with External Compression. TM 1279, March 1950.

CENTRAL (1.4.1.1)

Baals, Donald D.; Smith, Norman F.; and Wright, John B.: The Development and Application of High-Critical-Speed Nose Inlets. Rept. 920, 1948.

Nichols, Mark R. and Keith, Arvid L., Jr.: Investigation of a Systematic Group of NACA 1-Series Cowlings with and without Spinners. Rept. 950, 1949.

Brödel, Walter: Theory of Plane, Symmetrical Inlet Diffusers. TM 1267, April 1950.

Subsonic (1.4.1.1.2)

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Supersonic (1.4.1.1.3)

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Ferri, Antonio and Nucci, Louis M.: Preliminary Investigation of a New Type of Supersonic Inlet. TN 2286, April 1951.

Jack, John R.: Theoretical Wave Drags and Pressure Distributions for Axially Symmetric Open-Nose Bodies. TN 2115, June 1950.

ANNULAR (1.4.1.2)

Nichols, Mark R. and Keith, Arvid L., Jr.: Investigation of a Systematic Group of NACA 1-Series Cowlings with and without Spinners. Rept. 950, 1949.

Ferri, Antonio and Nucci, Louis M.: Preliminary Investigation of a New Type of Supersonic Inlet. TN 2286, April 1951.

LEADING EDGE
(1.4.1.3)

Ruden, P.: Two-Dimensional Symmetrical Inlets with External Compression. TM 1279, March 1950.

Brödel, Walter: Theory of Plane, Symmetrical Inlet Diffusers. TM 1267, April 1950.

SIDE
(1.4.1.4)

Ruden, P.: Two-Dimensional Symmetrical Inlets with External Compression. TM 1279, March 1950.

Scoops
(1.4.1.4.1)

Ruden, P.: Two-Dimensional Symmetrical Inlets with External Compression. TM 1279, March 1950.

DUCTS
(1.4.2)

Perl, W. and Moses, H. E.: Velocity Distribution on Two-Dimensional Wing-Duct Inlets by Conformal Mapping. Rept. 893, 1948.

Martin, Norman J. and Holzhauser, Curt A.: Analysis of Factors Influencing the Stability Characteristics of Symmetrical Twin-Intake Air-Induction Systems. TN 2049, March 1950.

Laufer, John: Investigation of Turbulent Flow in a Two-Dimensional Channel. TN 2123, July 1950.

DIFFUSERS
(1.4.2.1)

Wright, Linwood C.: Investigation to Determine Contraction Ratio for Supersonic-Compressor Rotor. RM E7L23, April 1948.

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Schäfer, Manfred and Tollmien, W.: Rotationally Symmetric Potential Flows. TM 1244, November 1949.

Wu, Chung-Hua: General Through-Flow Theory of Fluid Flow with Subsonic or Supersonic Velocity in Turbomachines of Arbitrary Hub and Casing Shapes. TN 2302, March 1951.

Subsonic
(1.4.2.1.1)

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Cohen, C. B. and Valerino, A. S.: Investigation of Operating Pressure Ratio of a Supersonic Wind Tunnel Utilizing Distributed Boundary-Layer Suction in Test Section. RM E50H04, November 1950.

Supersonic
(1.4.2.1.2)

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Cohen, C. B. and Valerino, A. S.: Investigation of Operating Pressure Ratio of a Supersonic Wind Tunnel Utilizing Distributed Boundary-Layer Suction in Test Section. RM E50H04, November 1950.

Ferri, Antonio and Nucci, Louis M.: Preliminary Investigation of a New Type of Supersonic Inlet. TN 2286, April 1951.

NOZZLES
(1.4.2.2)

Pinkel, I. Irving: Equations for the Design of Two-Dimensional Supersonic Nozzles. Rept. 907, 1948.

Grey, Ralph E., Jr. and Wilsted, H. Dean: Performance of Conical Jet Nozzles in Terms of Flow and Velocity Coefficients. Rept. 933, 1949.

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Nozzles - Ducts (Cont.)

Sanders, John C. and Brightwell, Virginia L.: Analysis of Ejector Thrust by Integration of Calculated Surface Pressures. TN 1958, October 1949.

Falkovich, S. V.: A Class of de Laval Nozzles. TM 1236, October 1949.

Schäfer, Manfred and Tollmien, W.: Rotationally Symmetric Potential Flows. TM 1244, November 1949.

Roy, Maurice: Theoretical Investigations on the Efficiency and the Conditions for the Realization of Jet Engines. , TM 1259, June 1950.

Lindsey, Walter F. and Chew, William L.: The Development and Performance of Two Small Tunnels Capable of Intermittent Operation at Mach Numbers between 0.4 and 4.0. TN 2189, September 1950.

Spooner, Robert B.: Effect of Heat-Capacity Lag on a Variety of Turbine-Nozzle Flow Processes. TN 2193, October 1950.

Brinich, Paul F.: Boundary-Layer Measurements in 3.84- by 10-Inch Supersonic Channel. TN 2203, October 1950.

Wu, Chung-Hua: General Through-Flow Theory of Fluid Flow with Subsonic or Supersonic Velocity in Turbomachines of Arbitrary Hub and Casing Shapes. TN 2302, March 1951.

PIPES
(1.4.2.3)

Lowdermilk, Warren H. and Grele, Milton D.: Influence of Tube-Entrance Configuration on Average Heat-Transfer Coefficients and Friction Factors for Air Flowing in an Inconel Tube. RM E50E23, August 1950.

Kaufman, Samuel J. and Isely, Francis D.: Preliminary Investigation of Heat Transfer to Water Flowing in an Electrically Heated Inconel Tube. RM E50G31, September 1950.

Nikuradse, J.: Laws of Flow in Rough Pipes. TM 1292, November 1950.

Desmon, Leland G. and Sams, Eldon W.: Correlation of Forced-Convection Heat-Transfer Data for Air Flowing in Smooth Platinum Tube with Long-Approach Entrance at High Surface and Inlet-Air Temperatures. RM E50H23, November 1950.

BENDS
(1.4.2.4)

Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including Those of Rotating System. TN 2310, March 1951.

EXITS
(1.4.3)

Corrsin, Stanley and Uberoi, Mahinder S.: Spectrums and Diffusion in a Round Turbulent Jet. TN 2124, July 1950.

CASCADES
(1.4.5)

Katzoff, S.; Finn, Robert S.; and Laurence, James C.: Interference Method for Obtaining the Potential Flow past an Arbitrary Cascade of Airfoils. Rept. 879, 1947.

Spurr, Robert A. and Allen, H. Julian: A Theory of Unstaggered Airfoil Cascades in Compressible Flow. Rept. 888, 1947.

Finger, Harold B.; Schum, Harold J.; and Buckner, Howard A., Jr.: Investigation of Inlet Guide Vanes for a Multistage Axial-Flow Compressor. TN 1954, October 1949.

Goldstein, Arthur W. and Mager, Artur: Attainable Circulation of Airfoils in Cascade. Rept. 953, 1950.

Costello, George R.: Method of Designing Cascade Blades with Prescribed Velocity Distributions in Compressible Potential Flows. Rept. 978, 1950.

Cascades (Cont.)

Corrsin, Stanley and Uberoi, Mahinder S.: Further Experiments on the Flow and Heat Transfer in a Heated Turbulent Air Jet. Rept. 998, 1950.

Wu, Chung-Hua: Formulas and Tables of Coefficients for Numerical Differentiations with Function Values Given at Unequally Spaced Points and Application to Solution of Partial Differential Equations. TN 2214, November 1950.

Savage, Melvyn and Westphal, Willard R.: Analysis of the Effects of Design Pressure Ratio per Stage and Off-Design Efficiency on the Operating Range of Multistage Axial-Flow Compressors. TN 2248, December 1950.

Wu, Chung-Hua: Survey of Available Information on Internal Flow Losses through Axial Turbomachines. RM E50J13, January 1951.

THEORY
(1.4.5.1)

Westphal, Willard R. and Dunavant, James C.: Application of the Wire-Mesh Plotting Device to Incompressible Cascade Flows. TN 2095, May 1950.

Hansen, Arthur G. and Yohner, Peggy L.: A Numerical Procedure for Designing Cascade Blades with Prescribed Velocity Distribution in Incompressible Flow. TN 2101, June 1950.

Lieblein, Seymour and Sandercock, Donald M.: Compressibility Correction for Turning Angles of Axial-Flow Inlet Guide Vanes. TN 2215, December 1950.

Costello, George R.; Cummings, Robert L.; and Sinnette, John T., Jr.: Detailed Computational Procedure for Design of Cascade Blades with Prescribed Velocity Distributions in Compressible Potential Flows. TN 2281, February 1951.

Bugaenko, G. A.: On the Problem of Gas Flow over an Infinite Cascade Using Chaplygin's Approximation. TM 1298, May 1951.

EXPERIMENT
(1.4.5.2)

Hauser, Cavour H.; Plohr, Henry W.; and Sonder, Gerhard: Study of Flow Conditions and Deflection Angle at Exit of Two-Dimensional Cascade of Turbine Rotor Blades at Critical and Supercritical Pressure Ratios. RM E9K25, March 1950.

Lieblein, Seymour: Turning-Angle Design Rules for Constant-Thickness Circular-Arc Inlet Guide Vanes in Axial Annular Flow. TN 2179, September 1950.

FANS
(1.4.6)

Oergel, C. T. and Foote, W. R.: Report on Jet Propulsion. ACR, August 1941.

Acker, Loren W. and Klienkecht, Kenneth S.: Flight Comparison of Performance and Cooling Characteristics of Exhaust-Ejector Installation with Exhaust-Collector-Ring Installation. RM E6L13a, February 1947.

Sanders, John C. and Brightwell, Virginia L.: Analysis of Ejector Thrust by Integration of Calculated Surface Pressures. TN 1958, October 1949.

Reid, Elliott G.: Annular-Jet Ejectors. TN 1949, November 1949.

Boxer, Emanuel: Influence of Wall Boundary Layer upon the Performance of an Axial-Flow Fan Rotor. TN 2291, February 1951.

BOUNDARY LAYER

(1.4.7)

- Sinnette, John T., Jr.: Some Methods of Analyzing the Effect of Basic Design Variables on Axial-Flow Compressor Performance. Rept. 901, 1948.
- Wright, Linwood C.: Investigation to Determine Contraction Ratio for Supersonic-Compressor Rotor. RM E7L23, April 1948.
- Ritter, William K. and Johnsen, Irving A.: Performance of 24-Inch Supersonic Axial-Flow Compressor in Air. I - Performance of Compressor Rotor at Design Tip Speed of 1600 Feet per Second. RM E7L10, May 1948.
- Donaldson, Coleman duP. and Sullivan, Roger D.: The Effect of Wall Friction on the Strength of Shock Waves in Tubes and Hydraulic Jumps in Channels. TN 1942, September 1949.
- Goldstein, Arthur W. and Mager, Artur: Attainable Circulation of Airfoils in Cascade. Rept. 953, 1950.
- Wu, Chung-Hua and Wolfenstein, Lincoln: Application of Radial-Equilibrium Condition to Axial-Flow Compressor and Turbine Design. Rept. 955, 1950.
- Tucker, Maurice: Approximate Turbulent Boundary-Layer Development in Plane Compressible Flow along Thermally Insulated Surfaces with Application to Supersonic-Tunnel Contour Correction. TN 2045, March 1950.
- Laufer, John: Investigation of Turbulent Flow in a Two-Dimensional Channel. TN 2123, July 1950.
- Brinich, Paul F.: Boundary-Layer Measurements in 3.84- by 10-Inch Supersonic Channel. TN 2203, October 1950.
- Cohen, C. B. and Valerino, A. S.: Investigation of Operating Pressure Ratio of a Supersonic Wind Tunnel Utilizing Distributed Boundary-Layer Suction in Test Section. RM E50H04, November 1950.
- Wu, Chung-Hua: Survey of Available Information on Internal Flow Losses through Axial Turbomachines. RM E50J13, January 1951.
- Boxer, Emanuel: Influence of Wall Boundary Layer upon the Performance of an Axial-Flow Fan Rotor. TN 2291, February 1951.
- Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including those of Rotating System. TN 2310, March 1951.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.
- Tucker, Maurice: Approximate Calculation of Turbulent Boundary-Layer Development in Compressible Flow. TN 2337, April 1951.

BOUNDARY LAYER CHARACTERISTICS (1.4.7.1)

- Wright, Linwood C.: Investigation to Determine Contraction Ratio for Supersonic-Compressor Rotor. RM E7L23, April 1948.
- Costello, George R.: Method of Designing Blades with Prescribed Velocity Distributions in Compressible Potential Flows. Rept. 978, 1950.
- Finger, Harold B.: Method of Experimentally Determining Radial Distributions of Velocity through Axial-Flow Compressor. TN 2059, April 1950.
- Liepmann, H. W.; Roshko, A.; and Dhawan, S.: On Reflection of Shock Waves from Boundary Layers. TN 2334, April 1951.

BOUNDARY-LAYER CONTROL
(1.4.7.2)

Sinnette, John T., Jr. and Costello,
George R.: Possible Application
of Blade Boundary-Layer Control
to Improvement of Design and Off-
Design Performance of Axial-Flow
Turbomachines. TN 2371, May
1951.

Propellers

(1.5)

Hubbard, Harvey H.: Sound Measurements for Five Shrouded Propellers at Static Conditions. TN 2024, April 1950.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

THEORY

(1.5.1)

Crigler, John L.: Application of Theodorsen's Theory to Propeller Design. Rept. 924, 1949.

Hubbard, Harvey H. and Regier, Arthur A.: Free-Space Oscillating Pressures near the Tips of Rotating Propellers. Rept. 996, 1950.

Vogeley, Arthur W.: Axial-Momentum Theory for Propellers in Compressible Flow. TN 2164, August 1950.

Roberts, John C. and Yaggy, Paul F.: A Survey of the Flow at the Plane of the Propeller of a Twin-Engine Airplane. TN 2192, September 1950.

Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combination. TN 2308, March 1951.

Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including those of Rotating System. TN 2310, March 1951.

Hubbard, Harvey H. and Lassiter, Leslie W.: Sound from a Two-Blade Propeller at Supersonic Tip Speeds. RM L51C27, May 1951.

DESIGN VARIABLES

(1.5.2)

Baker, John E. and Paulnock, Russell S.: Experimental Investigation of Flutter of a Propeller with Clark Y Section Operating at Zero Forward Velocity at Positive and Negative Blade-Angle Settings. TN 1966, December 1949.

Hubbard, Harvey H.: Sound Measurements for Five Shrouded Propellers at Static Conditions. TN 2024, April 1950.

Beranek, Leo L.; Elwell, Fred S.; Roberts, John P.; and Taylor, C. Fayette: Experiments in External Noise Reduction of Light Airplanes. TN 2079, May 1950.

BLADE SECTIONS

(1.5.2.1)

Delano, James B.: Investigation of Two-Blade Propellers at High Forward Speeds in the NACA 8-Foot High-Speed Tunnel. III - Effects of Camber and Compressibility NACA 4-(5)(08)-03 and NACA 4-(10)(08)-03 Blades. ACR L5F15, August 1945.

Evans, Albert J. and Klunker, E. Bernard: Preliminary Investigation of Two Full-Scale Propellers to Determine the Effect of Swept-Back Blade Tips on Propeller Aerodynamic Characteristics. RM L6J21, May 1947.

Gendler, Sel and Johnson, Donald F.: Determination of Minimum Moments of Inertia of Arbitrarily Shaped Areas, Such as Hollow Turbine Blades. RM E9H10, February 1950.

Blade Sections - Design Variables (Cont.)

Vogeley, Arthur W.: Axial-Momentum Theory for Propellers in Compressible Flow. TN 2164, August 1950.

Delano, James B. and Carmel, Melvin M.: Tests of Two-Blade Propellers in the Langley 8-Foot High-Speed Tunnel to Determine the Effect on Propeller Performance of a Modification of Inboard Pitch Distribution. TN 2268, February 1951.

SOLIDITY
(1.5.2.2)

Vogeley, A. W.: Sound-Level Measurements of a Light Airplane Modified to Reduce Noise Reaching the Ground. Rept. 926, 1949.

Stack, John; Draley, Eugene C.; Delano, James B.; and Feldman, Lewis: Investigation of the NACA 4-(3)(08)-03 and NACA 4-(3)(08)-045 Two-Blade Propellers at Forward Mach Numbers to 0.725 to Determine the Effects of Compressibility and Solidity on Performance. Rept. 999, 1950.

PITCH DISTRIBUTION
(1.5.2.3)

Delano, James B. and Carmel, Melvin M.: Tests of Two-Blade Propellers in the Langley 8-Foot High-Speed Tunnel to Determine the Effect on Propeller Performance of a Modification of Inboard Pitch Distribution. TN 2268, February 1951.

BLADE PLANFORMS
(1.5.2.4)

Evans, Albert J. and Klunker, E. Bernard: Preliminary Investigation of Two Full-Scale Propellers to Determine the Effect of Swept-Back Blade Tips on Propeller Aerodynamic Characteristics. RM L6J21, May 1947.

Hubbard, Harvey H. and Regier, Arthur A.: Free-Space Oscillating Pressures near the Tips of Rotating Propellers. Rept. 996, 1950.

MACH NUMBER EFFECTS
(1.5.2.5)

Delano, James B.: Investigation of Two-Blade Propellers at High Forward Speeds in the NACA 8-Foot High-Speed Tunnel. III - Effects of Camber and Compressibility NACA 4-(5)(03)-03 and NACA 4-(10)(08)-03 Blades. ACR L5F15, August 1945.

Evans, Albert J. and Klunker, E. Bernard: Preliminary Investigation of Two Full-Scale Propellers to Determine the Effect of Swept-Back Blade Tips on Propeller Aerodynamic Characteristics. RM L6J21, May 1947.

Hubbard, Harvey H. and Regier, Arthur A.: Free-Space Oscillating Pressures near the Tips of Rotating Propellers. Rept. 996, 1950.

Stack, John; Draley, Eugene C.; Delano, James B.; and Feldman, Lewis: Investigation of the NACA 4-(3)(08)-03 and NACA 4-(3)(08)-045 Two-Blade Propellers at Forward Mach Numbers to 0.725 to Determine the Effects of Compressibility and Solidity on Performance. Rept. 999, 1950.

Hammack, Jerome B. and Vogeley, A. W.: Propeller Flight Investigation to Determine the Effects of Blade Loading. TN 2022, January 1950.

Vogeley, Arthur W.: Axial-Momentum Theory for Propellers in Compressible Flow. TN 2164, August 1950.

Delano, James B. and Carmel, Melvin M.: Tests of Two-Blade Propellers in the Langley 8-Foot High-Speed Tunnel to Determine the Effect on Propeller Performance of a Modification of Inboard Pitch Distribution. TN 2268, February 1951.

Hubbard, Harvey H. and Lassiter, Leslie W.: Sound from a Two-Blade Propeller at Supersonic Tip Speeds. RM L51C27, May 1951

PUSHER
(1.5.2.6)

Schade, Robert O.: Free-Flight-Tunnel Investigation of Dynamic Longitudinal Stability as Influenced by the Static Stability Measured in Wind-Tunnel Force Tests under Conditions of Constant Thrust and Constant Power. TN 2075, April 1950.

DUAL ROTATION
(1.5.2.7)

Crigler, John L.: Application of Theodorsen's Theory to Propeller Design. Rept. 924, 1949.

INTERFERENCE OF BODIES
(1.5.2.8)

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Hubbard, Harvey H. and Regier, Arthur A.: Free-Space Oscillating Pressures near the Tips of Rotating Propellers. Rept. 996, 1950.

Vogeley, Arthur W.: Axial-Momentum Theory for Propellers in Compressible Flow. TN 2164, August 1950.

Roberts, John C. and Yaggy, Paul F.: A Survey of the Flow at the Plane of the Propeller of a Twin-Engine Airplane. TN 2192, September 1950.

Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combination. TN 2308, March 1951.

PITCH AND YAW
(1.5.2.9)

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Weil, Joseph, and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Roberts, John C. and Yaggy, Paul F.: A Survey of the Flow at the Plane of the Propeller of a Twin-Engine Airplane. TN 2192, September 1950.

Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combination. TN 2308, March 1951.

DIAMETER
(1.5.2.10)

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

DESIGNATED TYPES
(1.5.3)

Delano, James B.: Investigation of Two-Blade Propellers at High Forward Speeds in the NACA 8-Foot High-Speed Tunnel. III - Effects of Camber and Compressibility NACA 4-(5)(08)-03 and NACA 4-(10)(08)-03 Blades. ACR L5F15, August 1945.

Stack, John; Draley, Eugene C.; Delano, James B.; and Feldman, Lewis: Investigation of the NACA 4-(3)(08)-03 and NACA 4-(3)(08)-045 Two-Blade Propellers at Forward Mach Numbers to 0.725 to Determine the Effects of Compressibility and Solidity on Performance. Rept. 999, 1950.

Roy, Maurice: Theoretical Investigations on the Efficiency and the Conditions for the Realization of Jet Engines. TM 1259, June 1950.

Designated Types (Cont.)

Delano, James B. and Carmel, Melvin M.: Tests of Two-Blade Propellers in the Langley 8-Foot High-Speed Tunnel to Determine the Effect on Propeller Performance of a Modification of Inboard Pitch Distribution. TN 2268, February 1951.

SLIPSTREAM
(1.5.4)

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Lange, Roy H. and McLemore, Huel C.: Static Longitudinal Stability and Control of a Convertible-Type Airplane as Affected by Articulated- and Rigid-Propeller Operation. TN 2014, February 1950.

Vogeley, Arthur W.: Axial-Momentum Theory for Propellers in Compressible Flow. TN 2164, August 1950.

Delano, James B. and Carmel, Melvin M.: Tests of Two-Blade Propellers in the Langley 8-Foot High-Speed Tunnel to Determine the Effect on Propeller Performance of a Modification of Inboard Pitch Distribution. TN 2268, February 1951.

OPERATING CONDITIONS
(1.5.6)

Vogeley, A. W.: Sound-Level Measurements of a Light Airplane Modified to Reduce Noise Reaching the Ground. Rept. 926, 1949.

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Baker, John E. and Paulnock, Russell S.: Experimental Investigation of Flutter of a Propeller with Clark Y Section Operating at Zero Forward Velocity at Positive and Negative Blade-Angle Settings. TN 1966, December 1949.

Hammack, Jerome B. and Vogeley, A. W.: Propeller Flight Investigation to Determine the Effects of Blade Loading. TN 2022, January 1950.

Lange, Roy H. and McLemore, Huel C.: Static Longitudinal Stability and Control of a Convertible-Type Airplane as Affected by Articulated- and Rigid-Propeller Operation. TN 2014, February 1950.

Neel, Carr B., Jr. and Bright, Loren G.: The Effect of Ice Formations on Propeller Performance. TN 2212, October 1950.

Delano, James B. and Carmel, Melvin M.: Tests of Two-Blade Propellers in the Langley 8-Foot High-Speed Tunnel to Determine the Effect on Propeller Performance of a Modification of Inboard Pitch Distribution. TN 2268, February 1951.

Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combination. TN 2308, March 1951.

Rotating Wings

(1.6)

Carpenter, Paul J. and Paulnock, Russell S.: Hovering and Low-Speed Performance and Control Characteristics of an Aerodynamic-Servocontrolled Helicopter Rotor System as Determined on the Langley Helicopter Tower. TN 2086, May 1950.

THEORY

(1.6.1)

Dingeldein, Richard C. and Schaefer, Raymond F.: Full-Scale Investigation of the Aerodynamic Characteristics of a Typical Single-Rotor Helicopter in Forward Flight. Rept. 905, 1948.

Gessow, Alfred and Amer, Kenneth B.: An Introduction to the Physical Aspects of Helicopter Stability. Rept. 993, 1950.

Morduchow, Morris: A Theoretical Analysis of Elastic Vibrations of Fixed-Ended and Hinged Helicopter Blades in Hovering and Vertical Flight. TN 1999, January 1950.

Gessow, Alfred: An Analysis of the Autorotative Performance of a Helicopter Powered by Rotor-Tip Jet Units. TN 2154, July 1950.

Amer, Kenneth B.: Theory of Helicopter Damping in Pitch or Roll and a Comparison with Flight Measurements. TN 2136, October 1950.

Morduchow, M. and Hinchey, F. G.: Theoretical Analysis of Oscillations in Hovering of Helicopter Blades with Inclined and Offset Flapping and Lagging Hinge Axes. TN 2226, December 1950.

Amer, Kenneth B. and Gustafson, F. B.: Charts for Estimation of Longitudinal Stability Derivatives for a Helicopter Rotor in Forward Flight. TN 2309, March 1951.

Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including Those of Rotating System. TN 2310, March 1951.

Harrington, Robert D.: Full-Scale-Tunnel Investigation of the Static-Thrust Performance of a Coaxial Helicopter Rotor. TN 2318, March 1951.

EXPERIMENTAL STUDIES

(1.6.2)

Amer, Kenneth B.: Theory of Helicopter Damping in Pitch or Roll and a Comparison with Flight Measurements. TN 2136, October 1950.

Taylor, Marion K.: A Balsa-Dust Technique for Air-Flow Visualization and its Application to Flow through Model Helicopter Rotors in Static Thrust. TN 2220, November 1950.

POWER DRIVEN (1.6.2.1)

Dingeldein, Richard C. and Schaefer, Raymond F.: Full-Scale Investigation of the Aerodynamic Characteristics of a Typical Single-Rotor Helicopter in Forward Flight. Rept. 905, 1948.

Power Driven - Experimental Studies (Cont.)

Carpenter, Paul J. and Paulnock, Russell S.: Hovering and Low-Speed Performance and Control Characteristics of an Aerodynamic-Servocontrolled Helicopter Rotor System as Determined on the Langley Helicopter Tower. TN 2086, May 1950.

Taylor, Marion K.: A Balsa-Dust Technique for Air-Flow Visualization and its Application to Flow through Model Helicopter Rotors in Static Thrust. TN 2220, November 1950.

Carpenter, Paul J.: Effects of Compressibility on the Performance of Two Full-Scale Helicopter Rotors. TN 2277, January 1951.

Harrington, Robert D.: Full-Scale-Tunnel Investigation of the Static-Thrust Performance of a Coaxial Helicopter Rotor. TN 2318, March 1951.

AUTOROTATING
(1.6.2.2)

Gessow, Alfred: An Analysis of the Autorotative Performance of a Helicopter Powered by Rotor-Tip Jet Units. TN 2154, July 1950.

Aircraft

(1.7)

AIRPLANES

(1.7.1)

Neihouse, Anshal I. and Pepoon, Philip W.: Dynamic Similitude between a Model and a Full-Scale Body for Model Investigation at Full-Scale Mach Number. TN 2062, March 1950.

COMPONENTS IN COMBINATION (1.7.1.1)

Sivells, James C. and Spooner, Stanley H.: Investigation in the Langley 19-Foot Pressure Tunnel of Two Wings of NACA 65-210 and 64-210 Airfoil Sections with Various Type Flaps. Rept. 942, 1949.

Kohler, M. and Mautz, W.: Pressure-Distribution Measurements on the Tail Surfaces of a Rotating Model of the Design BFW - M 31. TM 1220, December 1949.

Shanks, Robert E.: Model Flight Investigation of a Nonlifting Winged Tow Target. RM L50H30, October 1950.

Michael, William H., Jr.: Analysis of the Effects of Wing Interference on the Tail Contributions to the Rolling Derivatives. TN 2332, April 1951.

Wing-Fuselage (1.7.1.1.1)

Van Dyke, Milton D.: Aerodynamic Characteristics Including Scale Effects of Several Wings and Bodies alone and in Combination at a Mach Number of 1.53. RM A6K22, December 1946.

Lomax, Harvard and Heaslet, Max. A.: Damping-in-Roll Calculations for Slender Swept-Back Wings and Slender Wing-Body Combinations. TN 1950, September 1949.

Spreiter, John R.: The Aerodynamic Forces on Slender Plane- and Cruciform-Wing and Body Combinations. Rept. 962, 1950.

Wick, Bradford H. and Graham, David: Exploratory Investigation of the Effect of Skewed Plain Nose Flaps on the Low-Speed Characteristics of a Large-Scale Triangular-Wing-Fuselage Model. RM A9K22, January 1950.

Lubarsky, Bernard: Performance and Load-Range Characteristics of Turbojet Engine in Transonic Speed Range. TN 2088, May 1950.

Tucker, Warren A. and Piland, Robert O.: Estimation of the Damping in Roll of Supersonic-Leading-Edge Wing-Body Combinations. TN 2151, July 1950.

Roberts, John C. and Yaggy, Paul F.: A Survey of the Flow at the Plane of the Propeller of a Twin-Engine Airplane. TN 2192, September 1950.

Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combination. TN 2308, March 1951.

Wing-Nacelle (1.7.1.1.2)

Hanson, Frederick H., Jr. and Dannenberg, Robert E.: Effect of a Nacelle on the Low-Speed Aerodynamic Characteristics of a Swept-Back Wing. RM A8E12, July 1948.

Wing-Nacelle - Airplanes (Cont.)

Lubarsky, Bernard: Performance and Load-Range Characteristics of Turbojet Engine in Transonic Speed Range. TN 2088, May 1950.

Roberts, John C. and Yaggy, Paul F.: A Survey of the Flow at the Plane of the Propeller of a Twin-Engine Airplane. TN 2192, September 1950.

Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combinations. TN 2308, March 1951.

Tail-Wing and Fuselage
(1.7.1.1.3)

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Brewer, Jack D. and Lichtenstein Jacob H.: Effect of Horizontal Tail on Low-Speed Static Lateral Stability Characteristics of a Model Having 45° Sweptback Wing and Tail Surfaces. TN 2010, January 1950.

Huffschnid, A.: Investigation of the Model ME 210 in the Spin Wind Tunnel of the DVL - Fourth Partial Report - Model with a Vee Tail. TM 1222, April 1950.

Queijo, M. J. and Wolhart, Walter D.: Experimental Investigation of the Effect of Vertical-Tail Size and Length and of Fuselage Shape and Length on the Static Lateral Stability Characteristics of a Model with 45° Sweptback Wing and Tail Surfaces. TN 2168, August 1950.

Letko, William and Riley, Donald R.: Effect of an Unswept Wing on the Contribution of Unswept-Tail Configurations to the Low-Speed Static and Rolling-Stability Derivatives of a Midwing Airplane Model. TN 2175, August 1950.

Stone, Ralph W., Jr.; Burke, Sanger M., Jr.; and Bihrlle, William, Jr.: The Aerodynamic Forces and Moments on a 1/10-Scale Model of a Fighter Airplane in Spinning Altitudes as Measured on a Rotary Balance in the Langley 20-Foot Free-Spinning Tunnel. TN 2181, September 1950.

Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

Letko, William: Effect of Vertical-Tail Area and Length on the Yawing Stability Characteristics of a Model having a 45° Sweptback Wing. TN 2358, May 1951.

External Stores
(1.7.1.1.5)

Berman, Theodore: Spin-Tunnel Investigation of the Jettisoning of External Fuel Tanks in Spins. RM L9J25, November 1949.

SPECIFIC AIRPLANES
(1.7.1.2)

Nissen, James M.; Gadeberg, Burnett L.; and Hamilton, William T.: Correlation of the Drag Characteristics of a P-51B Airplane Obtained from High-Speed Wind Tunnel and Flight Tests. Rept. 916, 1948.

Steiner, Roy: An Analysis of Airspeeds Attained by a Douglas DC-4 Airplane in Commerical Operations during the Early Months of 1947. RM L8K24, October 1949.

Specific Airplanes (Cont.)

Faber, Stanley: Comparison of Effectiveness of Coordinated Turns and Level Sideslips for Correcting Lateral Displacement during Landing Approaches. RM L9I29, December 1949.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

Huffs Schmid, A.: Investigation of the Model ME 210 in the Spin Wind Tunnel of the DVL - Fourth Partial Report - Model with a Vee Tail. TM 1222, April 1950.

Coleman, Thomas L.: An Analysis of the Normal Accelerations and Airspeeds of Several Lockheed Constellation L-649 Airplanes in Post-war Commercial Transport Operations over the Eastern Part of the United States. RM L9E18a, April 1950.

Fisher, Lloyd J. and Hoffman, Edward L.: Model Ditching Investigation of the Douglas DC-4 and DC-6 Airplanes. RM L9K02a, May 1950.

Talmage, Donald B.; Reeder, John P.; and Matthews, Ruth G.: Flight Investigation of Longitudinal Stability and Control Characteristics and Stalling Characteristics of a C-45D Airplane. RM L9L21, May 1950.

Mathews, Charles W.; Talmage, Donald B.; and Whitten, James B.: Effects of Longitudinal Stability and Control Characteristics of a B-29 Airplane of Variations in Stick-Force and Control-Rate Characteristics Obtained through Use of a Booster in the Elevator-Control System. TN 2238, February 1951.

PERFORMANCE
(1.7.1.3)

Lovell, J. Calvin and Lipson, Stanley: An Analysis of the Effect of Lift-Drag Ratio and Stalling Speed on Landing-Flare Characteristics. TN 1930, September 1949.

Stephenson, Jack D.: The Effects of Aerodynamic Brakes upon the Speed Characteristics of Airplanes. TN 1939, September 1949.

Stuper: Flight Experiences and Tests on Two Airplanes with Suction Slots. TM 1232, January 1950.

Horton, Elmer A.; Loftin, Laurence K., Jr.; and Racisz, Stanley F.: Analysis of the Effects of Boundary-Layer Control on the Power-Off Landing Performance Characteristics of a Liaison Type of Airplane. TN 2143, August 1950.

MISSILES
(1.7.2)

Chapman, Dean R. and Perkins, Edward W.: Experimental Investigation of the Effects of Viscosity on the Drag of Bodies of Revolution at a Mach Number of 1.5. RM A7A31a, April 1947.

Neihouse, Anshal I. and Pepoon, Philip W.: Dynamic Similitude between a Model and a Full-Scale Body for Model Investigation at Full-Scale Mach Number. TN 2062, March 1950.

Soule, Harold V. and Sabol, Alexander P.: Development and Preliminary Investigation of a Method of Obtaining Hypersonic Aerodynamic Data by Firing Models through Highly Cooled Gases. TN 2120, July 1950.

Adams, Gaynor J.: Theoretical Damping in Roll and Rolling Effectiveness of Slender Cruciform Wings. TN 2270, January 1951.

Missiles (Cont.)

Henry, John R. and Bennett, J. Buel:
Method for Calculation of Ram-Jet
Performance. TN 2357, June 1951.

COMPONENTS IN COMBINATION
(1.7.2.1)

Spreiter, John R.: The Aerodynamic
Forces on Slender Plane- and
Cruciform-Wing and Body Combina-
tions. Rept. 962, 1950.

Wing-Body
(1.7.2.1.1)

Van Dyke, Milton D.: Aerodynamic
Characteristics Including Scale Ef-
fects of Several Wings and Bodies
alone and in Combination at Mach
Number of 1.53. RM A6K22,
December 1946.

Tucker, Warren A. and Piland,
Robert O.: Estimation of the Damp-
ing in Roll of Supersonic-Leading-
Edge Wing-Body Combinations.
TN 2151, July 1950.

Tail-Body
(1.7.2.1.2)

Spahr, J. Richard and Dickey, Robert R.:
Effect of Tail Surfaces on the Base
Drag of a Body of Revolution at
Mach Numbers of 1.5 and 2.0. TN
2360, April 1951.

Jet Interference
(1.7.2.1.3)

Szablewski, W.: The Diffusion of a Hot
Air Jet in Air in Motion. TM
1288, December 1950.

SPECIFIC MISSILES
(1.7.2.2)

Sponder, E. W.: Investigation of Lateral
Stability of a Glide Bomb Using
Automatic Control having no Time
Lag. TM 1248, August 1950.

ROTATING WING AIRCRAFT
(1.7.3)

AUTOGIROS
(1.7.3.1)

Gessow, Alfred and Amer, Kenneth B.:
An Introduction to the Physical As-
pects of Helicopter Stability.
Rept. 993, 1950.

Amer, Kenneth B. and Gustafson, F. B.:
Charts for Estimation of Longitudinal-
Stability Derivatives for a Helicopter
Rotor in Forward Flight. TN 2309,
March 1951.

HELICOPTERS
(1.7.3.2)

Dingeldein, Richard C. and Schaefer,
Raymond F.: Full-Scale Investiga-
tion of the Aerodynamic Character-
istics of a Typical Single-Rotor
Helicopter in Forward Flight.
Rept. 905, 1948.

Gustafson, F. B.; Amer, Kenneth B.;
Haig, C. R.; and Reeder, J. P.:
Longitudinal Flying Qualities of
Several Single-Rotor Helicopters
in Forward Flight. TN 1983,
November 1949.

Schaefer, Raymond F. and Smith,
Hamilton A.: Aerodynamic Charac-
teristics of the NACA 8-H-12 Air-
foil Section at Six Reynolds Num-
bers from 1.8×10^6 to 11.0×10^6 .
TN 1998, December 1949.

Gessow, Alfred and Amer, Kenneth B.:
An Introduction to the Physical As-
pects of Helicopter Stability.
Rept. 993, 1950.

Morduchow, Morris: A Theoretical
Analysis of Elastic Vibrations of
Fixed-Ended and Hinged Helicopter
Blades in Hovering and Vertical
Flight. TN 1999, January 1950.

Helicopters - Rotating Wing Aircraft (Cont.)

- Smith, Hamilton A. and Schaefer, Raymond F.: Aerodynamic Characteristics at Reynolds Numbers of 3.0×10^6 and 6.0×10^6 of Three Airfoil Sections Formed by Cutting off Various Amounts from the Rear Portion of the NACA 0012 Airfoil Section. TN 2074, April 1950.
- Carpenter, Paul J. and Paulnock, Russell S.: Hovering and Low-Speed Performance and Control Characteristics of an Aerodynamic-Servocontrolled Helicopter Rotor System as Determined on the Langley Helicopter Tower. TN 2086, May 1950.
- Amer, Kenneth B.: Theory of Helicopter Damping in Pitch or Roll and a Comparison with Flight Measurements. TN 2136, October 1950.
- Gessow, Alfred: An Analysis of the Autorotative Performance of a Helicopter Powered by Rotor-Tip Jet Units. TN 2154, July 1950.
- Morduchow, M. and Hinchey, F. G.: Theoretical Analysis of Oscillations in Hovering of Helicopter Blades with Inclined and Offset Flapping and Lagging Hinge Axes. TN 2226, December 1950.
- Carpenter, Paul J.: Effects of Compressibility on the Performance of Two Full-Scale Helicopter Rotors. TN 2277, January 1951.
- Amer, Kenneth B. and Gustafson, F. B.: Charts for Estimation of Longitudinal-Stability Derivatives for a Helicopter Rotor in Forward Flight. TN 2309, March 1951.
- Harrington, Robert D.: Full-Scale-Tunnel Investigation of the Static-Thrust Performance of a Coaxial Helicopter Rotor. TN 2318, March 1951.
- de Guillenchmidt, P.: Calculation of the Bending Stresses in Helicopter Rotor Blades. TM 1312, March 1951.

Stability and Control

(1.8)

- Kohler, M. and Mautz, W.: Pressure-Distribution Measurements on the Tail Surfaces of a Rotating Model of the Design BFW - M 31. TM 1220, December 1949.
- Gessow, Alfred and Amer, Kenneth B.: An Introduction to the Physical Aspects of Helicopter Stability. Rept. 993, 1950.
- Carpenter, Paul J. and Paulnock, Russell S.: Hovering and Low-Speed Performance and Control Characteristics of an Aerodynamic-Servocontrolled Helicopter Rotor System as Determined on the Langley Helicopter Tower. TN 2086, May 1950.
- Amer, Kenneth B.: Theory of Helicopter Damping in Pitch or Roll and a Comparison with Flight Measurements. TN 2136, October 1950.
- Longitudinal Static Stability
(1.8.1.1.1)
- Wilson, Herbert A., Jr. and Lovell, J. Calvin: Full-Scale Investigation of the Maximum Lift and Flow Characteristics of an Airplane Having Approximately Triangular Plan Form. RM L6K20, February 1947.
- Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.
- DeYoung, John and Harper, Charles W.: Theoretical Symmetric Span Loading at Subsonic Speeds for Wings having Arbitrary Plan Form. Rept. 921, 1948.
- Hanson, Frederick H., Jr. and Dannenberg, Robert E.: Effect of a Nacelle on the Low-Speed Aerodynamic Characteristics of a Swept-Back Wing. RM A8E12, July 1948.
- Harmon, Sidney M.: Stability Derivatives of Thin Rectangular Wings at Supersonic Speeds. Wing Diagonals ahead of Tip Mach Lines. Rept. 925, 1949.
- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.
- Harmon, Sidney M.: Theoretical Relations between the Stability Derivatives of a Wing in Direct and in Reverse Supersonic Flow. TN 1943, September 1949.
- Piland, Robert O.: Summary of the Theoretical Lift, Damping-in-Roll, and Center-of-Pressure Characteristics of Various Wing Plan Forms at Supersonic Speeds. TN 1977, October 1949.
- Gustafson, F. B.; Amer, Kenneth B.; Haig, C. R.; and Reeder, J. P.: Longitudinal Flying Qualities of Several Single-Rotor Helicopters in Forward Flight. TN 1983, November 1949.

Longitudinal Static Stability (Cont.)

- Heaslet, Max. A. and Lomax, Harvard:
The Calculation of Downwash behind
Supersonic Wings with an Application
to Triangular Plan Forms. Rept.
957, 1950.
- Mirels, Harold and Haefeli, Rudolph C.:
Line-Vortex Theory for Calcula-
tion of Supersonic Downwash. Rept.
983, 1950.
- Brewer, Jack D. and Lichtenstein,
Jacob H.: Effect of Horizontal
Tail on Low-Speed Static Lateral
Stability Characteristics of a
Model having 45° Sweptback Wing
and Tail Surfaces. TN 2010,
January 1950.
- Lange, Roy H. and McLemore, Huel C.:
Static Longitudinal Stability and
Control of a Convertible-Type Air-
plane as Affected by Articulated-
and Rigid-Propeller Operation.
TN 2014, February 1950.
- Ribner, Herbert S.: Time-Dependent
Downwash at the Tail and the
Pitching Moment Due to Normal
Acceleration at Supersonic Speeds.
TN 2042, February 1950.
- Schade, Robert O.: Free-Flight-Tunnel
Investigation of Dynamic Longi-
tudinal Stability as Influenced by
the Static Stability Measured in
Wind-Tunnel Force Tests under
Conditions of Constant Thrust and
Constant Power. TN 2075, April
1950.
- Johnson, Harold S. and Hagerman,
John R.: Wind-Tunnel Investigation
at Low Speed of an Unswept Un-
tapered Semispan Wing of Aspect
Ratio 3.13 Equipped with Various
25-Percent-Chord Plain Flaps.
TN 2080, April 1950.
- Scher, Stanley H. and Draper, John W.:
The Effects of Stability of Spin-
Recovery Tail Parachutes on the
Behavior of Airplanes in Gliding
Flight and in Spins. TN 2098,
May 1950.
- Talmage, Donald B.; Reeder, John P.;
and Matthews, Ruth G.: Flight In-
vestigation of Longitudinal Stability
and Control Characteristics and
Stalling Characteristics of a C-54D
Airplane. RM L9L21, May 1950.
- Haefeli, Rudolph C.; Mirels, Harold;
and Cummings, John L.: Charts
for Estimating Downwash behind
Rectangular, Trapezoidal, and
Triangular Wings at Supersonic
Speeds. TN 2141, August 1950.
- Johnson, Harold S. and Hagerman,
John R.: Wind-Tunnel Investigation
at Low Speed of a 45° Sweptback Un-
tapered Semispan Wing of Aspect
Ratio 1.59 Equipped with Various
25-Percent-Chord Plain Flaps.
TN 2169, August 1950.
- Letko, William and Riley, Donald R.:
Effect of an Unswept Wing on the
Contribution of Unswept-Tail Con-
figurations to the Low-Speed Static-
and Rolling-Stability Derivatives of
a Midwing Airplane Model. TN
2175, August 1950.
- Riebe, John M. and Watson, James M.:
The Effect of End Plates on Swept
Wings at Low Speed. TN 2229,
November 1950.
- Mathews, Charles W.; Talmage,
Donald B.; and Whitten, James B.:
Effects on Longitudinal Stability and
Control Characteristics of a B-29
Airplane of Variations in Stick-Force
and Control-Rate Characteristics
Obtained through Use of a Booster
in the Elevator-Control System.
TN 2238, February 1951.
- Amer, Kenneth B. and Gustafson, F. B.:
Charts for Estimation of Longitudinal-
Stability Derivatives for a Helicopter
Rotor in Forward Flight. TN 2309,
March 1951.
- Naeseth, Rodger L. and O'Hare,
William M.: Effect of Aspect Ratio
on the Low-Speed Lateral Control
Characteristics of Unswept Un-
tapered Low-Aspect-Ratio Wings.
TN 2348, May 1951.

Lateral Static Stability
(1.8.1.1.2)

Purser, Paul E. and Spearman,
M. Leroy: Wind-Tunnel Tests at
Low Speed of Swept and Yawed
Wings having Various Plan Forms.
RM L7D23, May 1947.

Harmon, Sidney M.: Stability Deriva-
tives of Thin Rectangular Wings at
Supersonic Speeds. Wing Diagonals
ahead of Tip Mach Lines. Rept.
925, 1949.

Phillips, William H.: Appreciation and
Prediction of Flying Qualities.
Rept. 927, 1949.

Kauffman, William M.; Liddell,
Charles J., Jr.; Smith, Allan;
and Van Dyke, Rudolph D., Jr.:
An Apparatus for Varying Effective
Dihedral in Flight with Application
to a Study of Tolerable Dihedral on
a Conventional Fighter Airplane.
Rept. 948, 1949.

Brewer, Jack D. and Lichtenstein,
Jacob H.: Effect of Horizontal Tail
on Low-Speed Static Lateral Stabil-
ity Characteristics of a Model hav-
ing 45° Sweptback Wing and Tail
Surfaces. TN 2010, January 1950.

Bird, John D. and Jaquet, Byron M.:
A Study of the Use of Experimental
Stability Derivatives in the Calcula-
tion of the Lateral Disturbed Mo-
tions of a Swept-Wing Airplane and
Comparison with Flight Results.
TN 2013, January 1950.

Lovell, Powell M., Jr. and Stassi, Paul P.:
A Comparison of the Lateral Con-
trollability with Flap and Plug Ailer-
ons on a Sweptback-Wing Model.
TN 2089, May 1950.

Margolis, Kenneth: Theoretical Calcula-
tions of the Lateral Force and Yaw-
ing Moment Due to Rolling at Super-
sonic Speeds for Sweptback Tapered
Wings with Streamwise Tips. Sub-
sonic Leading Edges. TN 2122,
June 1950.

Queijo, M. J. and Wolhart, Walter D.:
Experimental Investigation of the
Effect of Vertical-Tail Size and
Length and of Fuselage Shape and
Length on the Static Lateral
Stability Characteristics of a
Model with 45° Sweptback Wing
and Tail Surfaces. TN 2168,
August 1950.

Letko, William and Riley, Donald R.:
Effect of an Unswept Wing on the
Contribution of Unswept-Tail Con-
figurations to the Low-Speed
Static- and Rolling-Stability Deri-
vatives of a Midwing Airplane
Model. TN 2175, August 1950.

Riebe, John M. and Watson, James M.:
The Effect of End Plates on Swept
Wings at Low Speed. TN 2229,
November 1950.

Lovell, Powell M., Jr.: A Compari-
son of the Lateral Controllability
with Flap and Plug Ailerons on a
Sweptback-Wing Model Having
Full-Span Flaps. TN 2247, De-
cember 1950.

Lampert, Seymour: Rolling and Yaw-
ing Moments for Swept-Back
Wings in Sideslip at Supersonic
Speeds. TN 2262, January 1951.

Naeseth, Rodger L. and O'Hare,
William M.: Effect of Aspect
Ratio on the Low-Speed Lateral
Control Characteristics of Un-
swept Untapered Low-Aspect-
Ratio Wings. TN 2348, May 1951.

Directional Static Stability
(1.8.1.1.3)

Harmon, Sidney M.: Stability Deriva-
tives of Thin Rectangular Wings
at Supersonic Speeds. Wing
Diagonals ahead of Tip Mach Lines.
Rept. 925, 1949.

Directional Static Stability (Cont.)

- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Johnson, Harold I.: Flight Investigation of the Effect of Various Vertical-Tail Modifications on the Directional Stability and Control Characteristics of a Propeller-Driven Fighter Airplane. Rept. 973, 1950.
- Brewer, Jack D. and Lichtenstein, Jacob H.: Effect of Horizontal Tail on Low-Speed Static Lateral Stability Characteristics of a Model having 45° Sweptback Wing and Tail Surfaces. TN 2010, January 1950.
- Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.
- Scher, Stanley H. and Draper, John W.: The Effects of Stability of Spin-Recovery Tail Parachutes on the Behavior of Airplanes in Gliding Flight and in Spins. TN 2098, May 1950.
- Letko, William and Riley, Donald R.: Effect of an Unswept Wing on the Contribution of Unswept-Tail Configurations to the Low-Speed Static and Rolling-Stability Derivatives of a Midwing Airplane Model. TN 2175, August 1950.
- Queijo, M. J. and Wolhart, Walter D.: Experimental Investigation of the Effect of Vertical-Tail Size and Length and of Fuselage Shape and Length on the Static Lateral Stability Characteristics of a Model with 45° Sweptback Wing and Tail Surfaces. TN 2168, August 1950.

DYNAMIC STABILITY
(1.8.1.2)

- Evvard, John C.: Use of Source Distributions for Evaluating Theoretical Aerodynamics of Thin Finite Wings at Supersonic Speeds. Rept. 951, 1950.

Curfman, Howard J., Jr. and Gardiner, Robert A.: Method for Determining the Frequency-Response Characteristics of an Element or System from the System Transient Output Response to a Known Input Function. Rept. 984, 1950.

Gardiner, Robert A.; Zarovsky, Jacob; and Ankenbruck, H. O.: An Investigation of the Stability of a System Composed of a Subsonic Canard Airframe and a Canted-Axis Gyroscope Automatic Pilot. TN 2004, January 1950.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, 1950.

Niehouse, Anshal I. and Pepoon, Philip W.: Dynamic Similitude between a Model and a Full-Scale Body for Model Investigation at Full-Scale Mach Number. TN 2062, March 1950.

Sponder, E. W.: Investigation of Lateral Stability of a Glide Bomb Using Automatic Control having no Time Lag. TM 1248, August 1950.

Turner, Howard L.: Measurement of the Moments of Inertia of an Airplane by a Simplified Method. TN 2201, October 1950.

Lomax, Harvard; Heaslet, Max. A.; and Fuller, Franklyn B.: Three-Dimensional, Unsteady-Lift Problems in High-Speed Flight - Basic Concepts. TN 2256, December 1950.

Schy, Albert A.: A Theoretical Analysis of the Effects of Fuel Motion on Airplane Dynamics. TN 2280, January 1951.

Longitudinal Dynamic Stability
(1.8.1.2.1)

Greenberg, Harry: Frequency-Response Method for Determination of Dynamic Stability Characteristics of Airplanes with Automatic Controls. Rept. 882, 1947.

Longitudinal Dynamic Stability (Cont.)

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Filzek, B.: Investigations on the Stability, Oscillation, and Stress Conditions of Airplanes with Tab Control. First Partial Report - Derivation of the Equations of Motion and their General Solutions. TM 1197, September 1949.

Filzek, B.: Investigations on the Stability, Oscillation, and Stress Conditions of Airplanes with Tab Control. Second Partial Report - Application of the Solutions Obtained in the First Partial Report to Tab-Controlled Airplanes. TM 1198, September 1949.

Gustafson, F. B.; Amer, Kenneth B.; Haig, C. R.; and Reeder, J. P.: Longitudinal Flying Qualities of Several Single-Rotor Helicopters in Forward Flight. TN 1983, November 1949.

Mokrzycki, G. A.: Application of the Laplace Transformation to the Solution of the Lateral and Longitudinal Stability Equations. TN 2002, January 1950.

Mazelsky, Bernard and Diederich, Franklin W.: A Method of Determining the Effect of Airplane Stability on the Gust Load Factor. TN 2035, February 1950.

Schade, Robert O.: Free-Flight-Tunnel Investigation of Dynamic Longitudinal Stability as Influenced by the Static Stability Measured in Wind-Tunnel Force Tests under Conditions of Constant Thrust and Constant Power. TN 2075, April 1950.

Scher, Stanley H. and Draper, John W.: The Effects of Stability of Spin-Recovery Tail Parachutes on the Behavior of Airplanes in Gliding Flight and in Spins. TN 2098, May 1950.

Matheny, Cloyce E.: Maximum Pitching Angular Accelerations of Airplanes Measured in Flight. TN 2103, May 1950.

Mathews, Charles W.; Talmage, Donald B.; and Whitten, James B.: Effects on Longitudinal Stability and Control Characteristics of a B-29 Airplanes of Variations in Stick-Force and Control-Rate Characteristics Obtained through Use of a Booster in the Elevator-Control System. TN 2238, February 1951.

Amer, Kenneth B. and Gustafson, F. B.: Charts for Estimation of Longitudinal-Stability Derivatives for a Helicopter Rotor in Forward Flight. TN 2309, March 1951.

Greenberg, Harry: A Survey of Methods for Determining Stability Parameters of an Airplane from Dynamic Flight Measurements. TN 2340, April 1951.

Shinbrot, Marvin: A Least-Squares Curve-Fitting Method with Applications to the Calculation of Stability Coefficients from Transient-Response Data. TN 2341, April 1951.

Donegan, James J. and Pearson, Henry A.: Matrix Method of Determining the Longitudinal-Stability Coefficients and Frequency Response of an Aircraft from Transient Flight Data. TN 2371, June 1951.

Lateral and Directional Dynamic Stability
(1.8.1.2.2)

Greenberg, Harry: Frequency-Response Method for Determination of Dynamic Stability Characteristics of Airplanes with Automatic Controls. Rept. 882, 1947.

Lateral and Directional Dynamic Stability
(Cont.)

- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Sternfield, Leonard and Gates, Ordway B., Jr.: A Simplified Method for the Determination and Analysis of the Neutral-Lateral-Oscillatory-Stability Boundary. Rept. 943, 1949.
- Kauffman, William M.; Liddell, Charles J., Jr.; Smith, Allan; and Van Dyke, Rudolph D., Jr.: An Apparatus for Varying Effective Dihedral in Flight with Application to a Study of Tolerable Dihedral on a Conventional Fighter Airplane. Rept. 948, 1949.
- Campbell, John P. and Goodman, Alex: A Semiempirical Method for Estimating the Rolling Moment Due to Yawing of Airplanes. TN 1984, December 1949.
- McKinney, Marion O., Jr.: Analysis of Means of Improving the Uncontrolled Lateral Motions of Personal Airplanes. TN 1997, December 1949.
- Johnson, Harold I.: Flight Investigation of the Effect of Various Vertical-Tail Modifications on the Directional Stability and Control Characteristics of a Propeller-Driven Fighter Airplane. Rept. 973, 1950.
- Mokrzycki, G. A.: Application of the Laplace Transformation to the Solution of the Lateral and Longitudinal Stability Equations. TN 2002, January 1950.
- Sternfield, Leonard and Gates, Ordway B., Jr.: A Theoretical Analysis of the Effect of Time Lag in an Automatic Stabilization System on the Lateral Oscillatory Stability of an Airplane. TN 2005, January 1950.
- Beckhardt, Arnold R.: A Theoretical Investigation of the Effect on the Lateral Oscillations of an Airplane of an Automatic Control Sensitive to Yawing Accelerations. TN 2006, January 1950.
- Scher, Stanley H. and Draper, John W.: The Effects of Stability of Spin-Recovery Tail Parachutes on the Behavior of Airplanes in Gliding Flight and in Spins. TN 2098, May 1950.
- Murray, Harry E. and Grant, Frederick C.: Method of Calculating the Lateral Motions of Aircraft Based on the Laplace Transform. TN 2129, July 1950.
- Letko, William and Riley, Donald R.: Effect of an Unswept Wing on the Contribution of Unswept-Tail Configurations to the Low-Speed Static and Rolling-Stability Derivatives of a Midwing Airplane Model. TN 2175, August 1950.
- Stough, Carl J. and Kauffman, William M.: A Flight Investigation and Analysis of the Lateral-Oscillation Characteristics of an Airplane. TN 2195, October 1950.
- Shanks, Robert E.: Model Flight Investigation of a Nonlifting Winged Tow Target. RM L50H30, October 1950.
- Sternfield, Leonard: Some Effects of Nonlinear Variation in the Directional-Stability and Damping-in-Yawing Derivatives on the Lateral Stability of an Airplane. TN 2233, November 1950.
- Gates, Ordway B., Jr. and Schy, Albert A.: A Theoretical Method of Determining the Control Gearing and Time Lag Necessary for a Specified Damping of an Aircraft Equipped with a Constant-Time-Lag Autopilot. TN 2307, March 1951.
- Hewes, Donald E.: The Effects of Mass Distribution on the Low-Speed Dynamic Lateral Stability and Control Characteristics of a Model with a 45° Sweptback Wing. TN 2313, March 1951.

Lateral and Directional Dynamic Stability
(Cont.)

Michael, William H., Jr.: Analysis of the Effects of Wing Interference on the Tail Contributions to the Rolling Derivatives. TN 2332, April 1951.

Letko, William: Effect of Vertical-Tail Area and Length on the Yawing Stability Characteristics of a Model having a 45° Sweptback Wing. TN 2358, May 1951.

Damping Derivatives
(1.8.1.2.3)

Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.

Heaslet, Max. A. and Lomax, Harvard: The Use of Source-Sink and Doublet Distributions Extended to the Solution of Arbitrary Boundary Value Problems in Supersonic Flow. Rept. 900, 1948.

Ribner, Herbert S. and Malvestuto, Frank S., Jr.: Stability Derivatives of Triangular Wings at Supersonic Speeds. Rept. 908, 1948.

Harmon, Sidney M.: Stability Derivatives of Thin Rectangular Wings at Supersonic Speeds. Wing Diagonals ahead of Tip Mach Lines. Rept. 925, 1949.

Harmon, Sidney M.: Theoretical Relations between the Stability Derivatives of a Wing in Direct and in Reverse Supersonic Flow. TN 1943, September 1949.

Lomax, Harvard and Heaslet, Max. A.: Damping-in-Roll Calculations for Slender Swept-Back Wings and Slender Wing-Body Combinations. TN 1950, September 1949.

Piland, Robert O.: Summary of the Theoretical Lift, Damping-in-Roll, and Center-of-Pressure Characteristics of Various Wing Plan Forms at Supersonic Speeds. TN 1977, October 1949.

Campbell, John P. and Goodman, Alex: A Semiempirical Method for Estimating the Rolling Moment Due to Yawing of Airplanes. TN 1984, December 1949.

Goodman, Alex and Fisher, Lewis R.: Investigation at Low Speeds of the Effect of Aspect Ratio and Sweep on Rolling Stability Derivatives of Untapered Wings. Rept. 968, 1950.

Bird, John D.: Some Theoretical Low-Speed Span Loading Characteristics of Swept Wings in Roll and Sideslip. Rept. 969, 1950.

Malvestuto, Frank S., Jr.; Margolis, Kenneth; and Ribner, Herbert S.: Theoretical Lift and Damping in Roll at Supersonic Speeds of Thin Sweptback Tapered Wings with Streamwise Tips, Subsonic Leading Edges and Supersonic Trailing Edges. Rept. 970, 1950.

Malvestuto, Frank S., Jr. and Margolis, Kenneth: Theoretical Stability Derivatives of Thin Sweptback Wings Tapered to a Point with Sweptback or Swept-forward Trailing Edges for A Limited Range of Supersonic Speeds. Rept. 971, 1950.

Tucker, Warren A. and Nelson, Robert L.: The Effect of Torsional Flexibility on the Rolling Characteristics at Supersonic Speeds of Tapered Unswept Wings. Rept. 972, 1950.

Brown, Clinton E.: The Reversibility Theorem for Thin Airfoils in Subsonic and Supersonic Flow. Rept. 986, 1950.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

Moskowitz, Barry and Moeckel, W. E.: First-Order Theory for Unsteady Motion of Thin Wings at Supersonic Speeds. TN 2034, February 1950.

Damping Derivatives - Stability (Cont.)

- Walker, Harold J. and Ballantyne, Mary B.: Pressure Distribution and Damping in Steady Roll at Supersonic Mach Numbers of Flat Swept-Back Wings with Subsonic Edges. TN 2047, March 1950.
- Margolis, Kenneth: Theoretical Lift and Damping in Roll of Thin Swept-back Tapered Wings with Raked-In and Cross-Stream Wing Tips at Supersonic Speeds. Subsonic Leading Edges. TN 2048, March 1950.
- Harmon, Sidney M. and Jeffreys, Isabella: Theoretical Lift and Damping in Roll of Thin Wings with Arbitrary Sweep and Taper at Supersonic Speeds. Supersonic Leading and Trailing Edges. TN 2114, May 1950.
- Tucker, Warren A. and Piland, Robert O.: Estimation of the Damping in Roll of Supersonic-Leading-Edge Wing-Body Combinations. TN 2151, July 1950.
- Harmon, Sidney M. and Martin, John C.: Theoretical Calculations of the Lateral Force and Yawing Moment Due to Rolling at Supersonic Speeds for Sweptback Tapered Wings with Streamwise Tips. Supersonic Leading Edges. TN 2156, July 1950.
- Ribner, Herbert S.: On the Effect of Subsonic Trailing Edges on Damping in Roll and Pitch of Thin Sweptback Wings in a Supersonic Stream. TN 2146, August 1950.
- Ribner, Herbert S.: Some Conical and Quasi-Conical Flows in Linearized Supersonic-Wing Theory. TN 2147, August 1950.
- Letko, William and Riley, Donald R.: Effect of an Unswept Wing on the Contribution of Unswept-Tail Configurations to the Low-Speed Static and Rolling-Stability Derivatives of a Midwing Airplane Model. TN 2175, August 1950.
- Amer, Kenneth B.: Theory of Helicopter Damping in Pitch or Roll and a Comparison with Flight Measurements. TN 2136, October 1950.
- Walker, Harold J. and Ballantyne, Mary B.: Pressure Distribution and Damping in Steady Pitch at Supersonic Mach Numbers of Flat Swept-Back Wings having all Edges Subsonic. TN 2197, October 1950.
- Hassell, James L. and Bennett, Charles V.: The Dynamic Lateral Control Characteristics of Airplane Models having Unswept Wings with Round- and Sharp-Leading-Edge Sections. TN 2219, November 1950.
- Sternfield, Leonard: Some Effects of Nonlinear Variation in the Directional-Stability and Damping-in-Yawing Derivatives on the Lateral Stability of an Airplane. TN 2233, November 1950.
- Adams, Gaynor J.: Theoretical Damping in Roll and Rolling Effectiveness of Slender Cruciform Wings. TN 2270, January 1951.
- Sivells, James C. and Westrick, Gertrude C.: Method for Calculating Lift Distributions for Unswept Wings with Flaps or Ailerons by Use of Nonlinear Section Lift Data. TN 2283, January 1951.
- Ribner, Herbert S.: Damping in Roll of Cruciform and Some Related Delta Wings at Supersonic Speeds. TN 2285, February 1951.
- Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Lift and Pitching Derivatives of Thin Sweptback Tapered Wings with Streamwise Tips and Subsonic Leading Edges at Supersonic Speeds. TN 2294, February 1951.
- Malvestuto, Frank S., Jr. and Hoover, Dorothy M.: Supersonic Lift and Pitching Moment of Thin Sweptback Tapered Wings Produced by Constant Vertical Acceleration. Subsonic Leading Edges and Supersonic Trailing Edges. TN 2315, March 1951.

Damping Derivatives - Stability (Cont.)

- Michael, William H., Jr.: Analysis of the Effects of Wing Interference on the Tail Contributions to the Rolling Derivatives. TN 2332, April 1951.
- Diederich, Franklin W.: A Plan-Form Parameter for Correlating Certain Aerodynamic Characteristics of Swept Wings. TN 2335, April 1951.
- Greenberg, Harry: A Survey of Methods for Determining Stability Parameters of an Airplane from Dynamic Flight Measurements. TN 2340, April 1951.
- Shinbrot, Marvin: A Least-Squares Curve-Fitting Method with Applications to the Calculation of Stability Coefficients from Transient-Response Data. TN 2341, April 1951.
- Letko, William: Effect of Vertical-Tail Area and Length on the Yawing Stability Characteristics of a Model having a 45° Sweptback Wing. TN 2358, May 1951.
- Donegan, James J. and Pearson, Henry A.: Matrix Method of Determining the Longitudinal-Stability Coefficients and Frequency Response of an Aircraft from Transient Flight Data. TN 2370, June 1951.

CONTROL

(1.8.2)

- Wilson, Herbert A., Jr. and Lovell, J. Calvin: Full-Scale Investigation of the Maximum Lift and Flow Characteristics of an Airplane having Approximately Triangular Plan Form. RM L6K20, February 1947.
- Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

LONGITUDINAL CONTROL (1.8.2.1)

- Boddy, Lee E. and Williams, Walter C.: Summary and Analysis of Data on Dive-Recovery Flaps. RM A7F09, June 1947.
- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Tucker, Warren A. and Nelson, Robert L.: Theoretical Characteristics in Supersonic Flow of Two Types of Control Surfaces on Triangular Wings. Rept. 939, 1949.
- Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.
- Filzek, B.: Investigation on the Stability, Oscillation, and Stress Conditions of Airplanes with Tab Control. First Partial Report - Derivation of the Equations of Motion and their General Solutions. TM 1197, September 1949.
- Filzek, B.: Investigations on the Stability, Oscillation, and Stress Conditions of Airplanes with Tab Control. Second Partial Report - Application of the Solutions Obtained in the First Partial Report to Tab-Controlled Airplanes. TM 1198, September 1949.
- Dods, Jules B., Jr.: Wind-Tunnel Investigation of Horizontal Tails. V - 45° Swept-Back Plan Form of Aspect Ratio 2. RM A9D05, September 1949.
- Gustafson, F. B.; Amer, Kenneth B.; Haig, C. R.; and Reeder, J. P.: Longitudinal Flying Qualities of Several Single-Rotor Helicopters in Forward Flight. TN 1983, November 1949.
- Lange, Roy H. and McLemore, Huel C.: Static Longitudinal Stability and Control of a Convertible-Type Airplane as Affected by Articulated- and Rigid-Propeller Operation. TN 2014, February 1950.

Longitudinal Control (Cont.)

Matheny, Cloyce E.: Maximum Pitching Angular Accelerations of Airplanes Measured in Flight. TN 2103, May 1950.

Mathews, Charles W.; Talmage, Donald B.; and Whitten, James B.: Effects of Longitudinal Stability and Control Characteristics of a B-29 Airplane of Variations in Stick-Force and Control-Rate Characteristics Obtained through Use of a Booster in the Elevator-Control System. TN 2238, February 1951.

Dods, Jules B., Jr.: Estimation of Low-Speed Lift and Hinge-Moment Parameters for Full-Span Trailing-Edge Flaps on Lifting Surfaces with and without Sweepback. TN 2288, February 1951.

LATERAL CONTROL
(1.8.2.2)

Toll, Thomas A.: Summary of Lateral-Control Research. Rept. 868, 1947.

Sawyer, Richard H.: Flight Measurements of the Lateral Control Characteristics of Narrow-Chord Ailerons on the Trailing Edge of a Full-Span Slotted Flap. Rept. 883, 1947.

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Tucker, Warren A. and Nelson, Robert L.: Theoretical Characteristics in Supersonic Flow of Two Types of Control Surfaces on Triangular Wings. Rept. 939, 1949.

Faber, Stanley: Comparison of Effectiveness of Coordinated Turns and Level Sideslips for Correcting Lateral Displacement during Landing Approaches. RM L9129, December 1949.

Tucker, Warren A. and Nelson, Robert L.: The Effect of Torsional Flexibility on the Rolling Characteristics at Supersonic Speeds of Tapered Unswept Wings. Rept. 972, 1950.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

Lovell, Powell M., Jr. and Stassi, Paul P.: A Comparison of the Lateral Controllability with Flap and Plug Ailerons on a Sweptback-Wing Model. TN 2089, May 1950.

DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.

Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of the Lateral Control Characteristics of an Unswept Untapered Semispan Wing of Aspect Ratio 3.13 Equipped with Various 25-Percent-Chord Plain Ailerons. TN 2199, October 1950.

Hassell, James L. and Bennett, Charles V.: The Dynamic Lateral Control Characteristics of Airplane Models having Unswept Wings with Round- and Sharp-Leading-Edge Sections. TN 2219, November 1950.

Riebe, John M. and Watson, James M.: The Effect of End Plates on Swept Wings at Low Speed. TN 2229, November 1950.

Lovell, Powell M., Jr.: A Comparison of the Lateral Controllability with Flap and Plug Ailerons on a Sweptback-Wing Model having Full-Span Flaps. TN 2247, December 1950.

Adams, Gaynor J.: Theoretical Damping in Roll and Rolling Effectiveness of Slender Cruciform Wings. TN 2270, January 1951.

Lateral Control (Cont.)

- Sivells, James C. and Westrick, Gertrude C.: Method for Calculating Lift Distributions for Unswept Wings with Flaps or Ailerons by Use of Nonlinear Section Lift Data. TN 2283, January 1951.
- Hewes, Donald E.: The Effects of Mass Distribution on the Low-Speed Dynamic Lateral Stability and Control Characteristics of a Model with a 45° Sweptback Wing. TN 2313, March 1951.
- Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of Lateral Control Characteristics of an Untapered 45° Sweptback Semispan Wing of Aspect Ratio 1.59 Equipped with Various 25-Percent-Chord Plain Ailerons. TN 2316, March 1951.
- Fischel, Jack and Hagerman, John R.: Effect of Aspect Ratio and Sweepback on the Low-Speed Lateral Control Characteristics of Untapered Low-Aspect-Ratio Wings Equipped with Retractable Ailerons. TN 2347, May 1951.
- Naeseth, Rodger L. and O'Hare, William M.: Effect of Aspect Ratio on the Low-Speed Lateral Control Characteristics of Unswept Untapered Low-Aspect-Ratio Wings. TN 2348, May 1951.

DIRECTIONAL CONTROL
(1.8.2.3)

- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Dods, Jules B., Jr.: Wind Tunnel Investigation of Horizontal Tails. V - 45° Swept-Back Plan Form of Aspect Ratio 2. RM A9D05, September 1949.

- Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

- Hassell, James L. and Bennett, Charles V.: The Dynamic Lateral Control Characteristics of Airplane Models having Unswept Wings with Round- and Sharp-Leading-Edge Sections. TN 2219, November 1950.

- Dods, Jules B., Jr.: Estimation of Low-Speed Lift and Hinge-Moment Parameters for Full-Span Trailing-Edge Flaps on Lifting Surfaces with and without Sweepback. TN 2288, February 1951.

- Hewes, Donald E.: The Effects of Mass Distribution on the Low-Speed Dynamic Lateral Stability and Control Characteristics of a Model with a 45° Sweptback Wing. TN 2313, March 1951.

AIR BRAKES
(1.8.2.4)

- Stephenson, Jack D.: The Effects of Aerodynamic Brakes upon the Speed Characteristics of Airplanes. TN 1939, September 1949.

HINGE MOMENTS
(1.8.2.5)

- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Tucker, Warren A. and Nelson, Robert L.: Theoretical Characteristics in Supersonic Flow of Two Types of Control Surfaces on Triangular Wings. Rept. 939, 1949.

Hinge Moments - Control (Cont.)

- Dods, Jules B., Jr.: Wind-Tunnel Investigation of Horizontal Tails. V - 45° Swept-Back Plan Form of Aspect Ratio 2. RM A9D05, September 1949.
- Bihrlé, William, Jr.: Floating Characteristics of Rudders and Elevators in Spinning Attitudes as Determined from Hinge-Moment-Coefficient Data with Application to Personal-Owner-Type Airplanes. TN 2013, January 1950.
- Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of an Unswept Untapered Semispan Wing of Aspect Ratio 3.13 Equipped with Various 25-Percent-Chord Plain Flaps. TN 2080, April 1950.
- Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of a 45° Sweptback Untapered Semispan Wing of Aspect Ratio 1.59 Equipped with Various 25-Percent-Chord Plain Flaps. TN 2169, August 1950.
- Stough, Carl J. and Kauffman, William M.: A Flight Investigation and Analysis of the Lateral-Oscillation Characteristics of an Airplane. TN 2195, October 1950.
- Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of the Lateral Control Characteristics of an Unswept Untapered Semispan Wing of Aspect Ratio 3.13 Equipped with Various 25-Percent-Chord Plain Ailerons. TN 2199, October 1950.
- Dods, Jules B., Jr.: Estimation of Low-Speed Lift and Hinge-Moment Parameters for Full-Span Trailing-Edge Flaps on Lifting Surfaces with and without Sweepback. TN 2288, February 1951.
- Johnson, Harold S. and Hagerman, John R.: Wind-Tunnel Investigation at Low Speed of Lateral Control Characteristics of an Untapered 45° Sweptback Semispan Wing of Aspect Ratio 1.59 Equipped with Various 25-Percent-Chord Plain Ailerons. TN 2316, March 1951.
- Bihrlé, William, Jr.: Floating Characteristics of a Plain and a Horn-Balanced Rudder at Spinning Attitudes as Determined from Rotary Tests on a Model of a Typical Low-Wing Personal-Owner Airplane. TN 2359, May 1951.

AUTOMATIC CONTROL
(1.8.2.6)

- Flügge-Lotz, I. and Klotter, K.: On the Motions of an Oscillating System under the Influence of Flip-Flop Controls. TM 1237, November 1949.
- Curfman, Howard J., Jr. and Gardiner, Robert A.: Method for Determining the Frequency-Response Characteristics of an Element or System from the System Transient Output Response to a Known Input Function. Rept. 984, 1950.
- Gardiner, Robert A.; Zarovsky, Jacob; and Ankenbruck, H. O.: An Investigation of the Stability of a System Composed of a Subsonic Canard Airframe and a Canted-Axis Gyroscope Automatic Pilot. TN 2004, January 1950.
- Beckhardt, Arnold R.: A Theoretical Investigation of the Effect on the Lateral Oscillations of an Airplane of an Automatic Control Sensitive to Yawing Accelerations. TN 2006, January 1950.
- Sponder, E. W.: Investigations of Lateral Stability of a Glide Bomb Using Automatic Control having no Time Lag. TM 1248, August 1950.

Automatic Control (Cont.)

Smaus, Louis H. and Stewart, Elwood C.: Practical Methods of Calculation Involved in the Experimental Study of an Autopilot and the Autopilot-Aircraft Combination. TN 2373, June 1951.

SPINNING

(1.8.3)

Berman, Theodore: Spin-Tunnel Investigation of the Jettisoning of External Fuel Tanks in Spins. RM L9J25, November 1949.

Kohler, M. and Mautz, W.: Pressure-Distribution Measurements on the Tail Surfaces of a Rotating Model of the Design BFW - M 31. TM 1220, December 1949.

Bihrlé, William, Jr.: Floating Characteristics of Rudders and Elevators in Spinning Attitudes as Determined from Hinge-Moment-Coefficient Data with Application to Personal-Owner-Type Airplanes. TN 2016, January 1950.

Jones, Ira P., Jr. and Klinar, Walter J.: Spin-Tunnel Investigation to Determine the Effect on Spin Recoveries of Reducing the Opening Shock Load of Spin-Recovery Parachutes. TN 2051, March 1950.

Huffscheid, A.: Investigation of the Model ME 210 in the Spin Wind Tunnel of the DVL - Fourth Partial Report - Model with a Vee Tail. TM 1222, April 1950.

Scher, Stanley H. and Draper, John W.: The Effects of Stability of Spin-Recovery Tail Parachutes on the Behavior of Airplanes in Gliding Flight and in Spins. TN 2098, May 1950.

Berman, Theodore: Comparison of Model and Full-Scale Spin Test Results for 60 Airplane Designs. TN 2134, July 1950.

Stone, Ralph W., Jr.; Burk, Sanger M., Jr.; and Bihrlé, William, Jr.: The Aerodynamic Forces and Moments on a 1/10-Scale Model of a Fighter Airplane in Spinning Attitudes as Measured on a Rotary Balance in the Langley 20-Foot Free-Spinning Tunnel. TN 2181, September 1950.

Turner, Howard L.: Measurement of the Moments of Inertia of an Airplane by a Simplified Method. TN 2201, October 1950.

Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

Bihrlé, William, Jr.: Floating Characteristics of a Plain and a Horn-Balanced Rudder at Spinning Attitudes as Determined from Rotary Tests on a Model of a Typical Low-Wing Personal-Owner Airplane. TN 2359, May 1951.

STALLING

(1.8.4)

Purser, Paul E. and Spearman, M. Leroy: Wind-Tunnel Tests at Low Speed of Swept and Yawed Wings having Various Plan Forms. RM L7D23, May 1947.

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Sivells, James C. and Spooner, Stanley H.: Investigation in the Langley 19-Foot Pressure Tunnel of Two Wings of NACA 65-210 and 64-210 Airfoil Sections with Various Type Flaps. Rept. 942, 1949.

Stalling (Cont.)

Aiken, William S., Jr. and Howard, Donald A.: A Comparison of Wing Loads Measured in Flight on a Fighter-Type Airplane by Strain-Gage and Pressure-Distribution Methods. TN 1967, November 1949.

Harper, Paul W. and Flanigan, Roy E.: The Effect of Rate of Change of Angle of Attack on the Maximum Lift of a Small Model. TN 2061, March 1950.

Rose, Leonard M. and Altman, John M.: Low-Speed Investigation of the Stalling of a Thin, Faired, Double-Wedge Airfoil with Nose Flap. TN 2172, August 1950.

Kelly, John A.: Effects of Modifications to the Leading-Edge Region on the Stalling Characteristics of the NACA 631-012 Airfoil Section. TN 2228, November 1950.

Peterson, Robert F.: The Boundary-Layer and Stalling Characteristics of the NACA 64A010 Airfoil Section. TN 2235, November 1950.

Sivells, James C. and Westrick, Gertrude C.: Method for Calculating Lift Distributions for Unswept Wings with Flaps or Ailerons by Use of Nonlinear Section Lift Data. TN 2283, January 1951.

FLYING QUALITIES (1.8.5)

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Kauffman, William M.; Liddell, Charles J., Jr.; Smith, Allan; and Van Dyke, Rudolph D., Jr.: An Apparatus for Varying Effective Dihedral in Flight with Application to a Study of Tolerable Dihedral on a Conventional Fighter Airplane. Rept. 948, 1949.

Lovell, J. Calvin and Lipson, Stanley: An Analysis of the Effect of Lift-Drag Ratio and Stalling Speed on Landing-Flare Characteristics. TN 1930, September 1949.

Gustafson, F. B.; Amer, Kenneth B.; Haig, C. R.; and Reeder, J. P.: Longitudinal Flying Qualities of Several Single-Rotor Helicopters in Forward Flight. TN 1983, November 1949.

Faber, Stanley: Comparison of Effectiveness of Coordinated Turns and Level Sideslips for Correcting Lateral Displacement during Landing Approaches. RM L9129, December 1949.

Johnson, Harold I.: Flight Investigation of the Effect of Various Vertical-Tail Modifications on the Directional Stability and Control Characteristics of a Propeller-Driven Fighter Airplane. Rept. 973, 1950.

Bird, John D. and Jaquet, Byron M.: A Study of the Use of Experimental Stability Derivatives in the Calculation of the Lateral Disturbed Motions of a Swept-Wing Airplane and Comparison with Flight Results. TN 2013, January 1950.

Stüper: Flight Experiences and Tests on Two Airplanes with Suction Slots. TM 1232, January 1950.

Matheny, Cloyce E.: Maximum Pitching Angular Accelerations of Airplanes Measured in Flight. TN 2103, May 1950.

Flying Qualities (Cont.)

- Talmage, Donald B.; Reeder, John P.; and Matthews, Ruth G.: Flight Investigation of Longitudinal Stability and Control Characteristics and Stalling Characteristics of a C-54D Airplane. RM L9L21, May 1950.
- Amer, Kenneth B.: Theory of Helicopter Damping in Pitch or Roll and a Comparison with Flight Measurements. TN 2136, October 1950.
- Stough, Carl J. and Kauffman, William M.: A Flight Investigation and Analysis of the Lateral-Oscillation Characteristics of an Airplane. TN 2195, October 1950.
- Mathews, Charles W.; Talmage, Donald B.; and Whitten, James B.: Effects on Longitudinal Stability and Control Characteristics of a B-29 Airplane of Variations in Stick-Force and Control-Rate Characteristics Obtained through Use of a Booster in the Elevator-Control System. TN 2238, February 1951.
- Hewes, Donald E.: The Effects of Mass Distribution on the Low-Speed Dynamic Lateral Stability and Control Characteristics of a Model with a 45° Sweptback Wing. TN 2313, March 1951.

**MASS AND
GYROSCOPIC PROBLEMS
(1.8.6)**

- Neihouse, Anshal I. and Pepoon, Philip W.: Dynamic Similitude between a Model and a Full-Scale Body for Model Investigation at Full-Scale Mach Number. TN 2062, March 1950.
- Sponder, E. W.: Investigation of Lateral Stability of a Glide Bomb Using Automatic Control having no Time Lag. TM 1248, August 1950.

- Stone, Ralph W., Jr.; Burk, Sanger M., Jr.; and Bihrlé, William, Jr.: The Aerodynamic Forces and Moments on a 1/10-Scale Model of a Fighter Airplane in Spinning Attitudes as Measured on a Rotary Balance in the Langley 20-Foot Free-Spinning Tunnel. TN 2181, September 1950.
- Turner, Howard L.: Measurement of the Moments of Inertia of an Airplane by a Simplified Method. TN 2201, October 1950.
- Hewes, Donald E.: The Effects of Mass Distributions on the Low-Speed Dynamic Lateral Stability and Control Characteristics of a Model with a 45° Sweptback Wing. TN 2313, March 1951.
- Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

**AUTOMATIC STABILIZATION
(1.8.8)**

- Flügge-Lotz, I. and Klotter, K.: On the Motions of an Oscillating System under the Influence of Flip-Flop Controls. TM 1237, November 1949.
- Gardiner, Robert A.; Zarovsky, Jacob; and Ankenbruck, H. O.: An Investigation of the Stability of a System Composed of a Subsonic Canard Airframe and a Canted-Axis Gyroscope Automatic Pilot. TN 2004, January 1950.
- Sternfield, Leonard and Gates, Ordway B., Jr.: A Theoretical Analysis of the Effect of Time Lag in an Automatic Stabilization System on the Lateral Oscillatory Stability of an Airplane. TN 2005, January 1950.

Automatic Stabilization (Cont.)

- Sponder, E. W.: Investigations of Lateral Stability of a Glide Bomb Using Automatic Control having no Time Lag. TM 1248, August 1950.
- Jones, Arthur L. and Briggs, Benjamin R.: A Survey of Stability Analysis Techniques for Automatically Controlled Aircraft. TN 2275, January 1951.
- Gates, Ordway B., Jr. and Schy, Albert A.: A Theoretical Method of Determining the Control Gearing and Time Lag Necessary for a Specified Damping of an Aircraft Equipped with a Constant-Time-Lag Autopilot. TN 2307, March 1951.
- Smaus, Louis H. and Stewart, Elwood C.: Practical Methods of Calculation Involved in the Experimental Study of an Autopilot and the Autopilot-Aircraft Combination. TN 2373, June 1951.

Aeroelasticity

(1.9)

Skoog, Richard B. and Brown, Harvey H.:
A Method for the Determination of
the Spanwise Load Distribution of a
Flexible Swept Wing at Subsonic
Speeds. TN 2222, March 1951.

Parachutes (1.10)

Jones, Ira P., Jr. and Klinar, Walter J.:

Spin-Tunnel Investigation to Determine the Effect on Spin Recoveries of Reducing the Opening Shock Load of Spin-Recovery Parachutes. TN 2051, March 1950.

Scher, Stanley H. and Draper, John W.:

The Effects of Stability of Spin-Recovery Tail Parachutes on the Behavior of Airplanes in Gliding Flight and in Spins. TN 2098, May 1950.

Barmby, J. G.; Cunningham, H. J.; and Garrick, I. E.: Study of Effects of Sweep on the Flutter of Cantilever Wings. TN 2121, June 1950.

Berman, Theodore: Comparison of Model and Full-Scale Spin Test Results for 60 Airplane Designs. TN 2134, July 1950.

HYDRODYNAMICS

(2)

Theory

(2.1)

Imlay, Frederick H.: Theoretical Motions of Hydrofoil Systems. Rept. 918, 1948.

Sokolov, N. A.: Hydrodynamic Properties of Planing Surfaces and Flying Boats. TM 1246, October 1950.

General Arrangement Studies

(2.2)

Olson, Roland E. and Land, Norman S. :
Effect of Afterbody Length and Keel
Angle on Minimum Depth of Step
for Landing Stability and on Take-
Off Stability of a Flying Boat.
Rept. 923, 1949.

Kapryan, Walter J. : Effect of Forebody
Warp and Increase in Afterbody
Length on the Hydrodynamic Quali-
ties of a Flying-Boat Hull of High
Length-Beam Ratio. TN 1980,
November 1949.

Whitaker, Walter E., Jr. and Bryce,
Paul W., Jr. : Effect of an Increase
in Angle of Dead Rise on the Hydro-
dynamic Characteristics of a High-
Length-Beam-Ratio Hull. TN
2297, February 1951.

Seaplane Hull Variables

(2.3)

LENGTH-BEAM RATIO

(2.3.1)

- Kapryan, Walter J.: Effect of Forebody Warp and Increase in Afterbody Length on the Hydrodynamic Qualities of a Flying-Boat Hull of High Length-Beam Ratio. TN 1980, November 1949.
- Sottorf, W.: Systematic Model Researches on the Stability Limits of the DVL Series of Float Designs. TM 1254, December 1949.
- Batterson, Sidney A. and McArver, A. Ethelda: Water Landing Investigation of a Model having a Heavy Beam Loading and a 30° Angle of Dead Rise. TN 2015, February 1950.
- Smiley, Robert F.: A Study of Water Pressure Distributions during Landings with Special Reference to a Prismatic Model having a Heavy Beam Loading and a 30° Angle of Dead Rise. TN 2111, July 1950.
- Whitaker, Walter E., Jr. and Bryce, Paul W., Jr.: Effect of an Increase in Angle of Dead Rise on the Hydrodynamic Characteristics of a High-Length-Beam-Ratio Hull. TN 2297, February 1951.
- McArver, A. Ethelda: Water-Landing Investigation of a Model having Heavy Beam Loadings and 0° Angle of Dead Rise. TN 2330, April 1951.

DEADRISE

(2.3.2)

- Kapryan, Walter J.: Effect of Forebody Warp and Increase in Afterbody Length on the Hydrodynamic Qualities of a Flying-Boat Hull of High Length-Beam Ratio. TN 1980, November 1949.
- Sottorf, W.: Systematic Model Researches on the Stability Limits of the DVL Series of Float Designs. TM 1254, December 1949.
- Smiley, Robert F.: A Study of Water Pressure Distributions during Landings with Special Reference to a Prismatic Model having a Heavy Beam Loading and a 30° Angle of Dead Rise. TN 2111, July 1950.
- Whitaker, Walter E., Jr. and Bryce, Paul W., Jr.: Effect of an Increase in Angle of Dead Rise on the Hydrodynamic Characteristics of a High-Length-Beam-Ratio Hull. TN 2297, February 1951.

STEPS

(2.3.3)

- Olson, Roland E. and Land, Norman S.: Effect of Afterbody Length and Keel Angle on Minimum Depth of Step for Landing Stability and on Take-Off Stability of a Flying Boat. Rept. 923, 1949.

Steps (Cont.)

Ferguson, J. A.; Seibels, R. E., Jr.;
and Corber, R. J.: Flight Tests
of the Hydrodynamic Characteris-
tics of a Japanese "Emily" Flying
Boat. TN 1968, September 1949.

Sottorf, W.: Systematic Model Re-
searches on the Stability Limits
of the DVL Series of Float Designs.
TM 1254, December 1949.

AFTERBODY SHAPE

(2.3.4)

Olson, Roland E. and Land, Norman S.:
Effect of Afterbody Length and Keel
Angle on Minimum Depth of Step
for Landing Stability and on Take-
Off Stability of a Flying Boat.
Rept. 923, 1949.

Kapryan, Walter J.: Effect of Forebody
Warp and Increase in Afterbody
Length on the Hydrodynamic Quali-
ties of a Flying-Boat Hull of High
Length-Beam Ratio. TN 1980
November 1949.

Sottorf, W.: Systematic Model Re-
searches on the Stability Limits
of the DVL Series of Float Designs.
TM 1254, December 1949.

FOREBODY SHAPE

(2.3.5)

Milwitzky, Benjamin: A Theoretical
Investigation of Hydrodynamic
Impact Loads on Scalloped-Bottom
Seaplanes and Comparisons with
Experiment. Rept. 867, 1947.

Ferguson, J. A.; Seibels, R. E., Jr.;
and Corber, R. J.: Flight Tests
of the Hydrodynamic Characteris-
tics of a Japanese "Emily" Flying
Boat. TN 1968, September 1949.

Sottorf, W.: Systematic Model Re-
searches on the Stability Limits
of the DVL Series of Float Designs.
TM 1254, December 1949.

CHINES

(2.3.6)

Smiley, Robert F.: A Study of Water
Pressure Distributions during
Landings with Special Reference
to a Prismatic Model having a
Heavy Beam Loading and a 30°
Angle of Dead Rise. TN 2111,
July 1950.

Specific Seaplanes and Hulls (2.4)

Ferguson, J. A.; Seibels, R. E., Jr.;
and Corber, R. J.: Flight Tests of
the Hydrodynamic Characteristics
of a Japanese "Emily" Flying Boat.
TN 1968, September 1949.

Planing Surfaces (2.6)

- Milwitzky, Benjamin: A Theoretical Investigation of Hydrodynamic Impact Loads on Scalloped-Bottom Seaplanes and Comparisons with Experiment. Rept. 867, 1947.
- Sottorf, W.: Systematic Model Researches on the Stability Limits of the DVL Series of Float Designs. TM 1254, December 1949.
- Sokolov, N. A.: Hydrodynamic Properties of Planing Surfaces and Flying Boat. TM 1246, October 1950.
- Tillmann, W.: Additional Measurements of the Drag of Surface Irregularities in Turbulent Boundary Layers. TM 1299, January 1951.

Hydrofoils (2.7)

Imlay, Frederick H.: Theoretical Motions of Hydrofoil Systems. Rept. 918, 1948.

Surface Craft

(2.8)

Imlay, Frederick H.: Theoretical Motions of Hydrofoil Systems. Rept. 918, 1948.

Kapryan, Walter J.: Effect of Forebody Warp and Increase in Afterbody Length on the Hydrodynamic Qualities of a Flying-Boat Hull of High Length-Beam Ratio. TN 1980, November 1949.

Ditching Characteristics

(2.9)

Sottorf, W.: Landing Procedure in
Model Ditching Tests of Bf 109.
TM 1247, December 1949.

Fisher, Lloyd J. and Morris, Garland J.:
Ditching Tests of a 1/18-Scale Model
of the Lockheed Constellation Air-
plane. RM L8K18, April 1950.

Fisher, Lloyd J. and Hoffman,
Edward L.: Model Ditching Investi-
gation of the Douglas DC-4 and
DC-6 Airplanes. RM L9K02a,
May 1950.

Stability and Control (2.10)

Imlay, Frederick H.: Theoretical Motions of Hydrofoil Systems. Rept. 918, 1948.

LONGITUDINAL (2.10.1)

Benson, James M.; Havens, Robert F.; and Woodward, David R.: Landing Characteristics in Waves of Three Dynamic Models of Flying Boats. RM L6L13, May 1947.

Olson, Roland E. and Land, Norman S.: Effect of Afterbody Length and Keel Angle on Minimum Depth of Step for Landing Stability and on Take-Off Stability of a Flying Boat. Rept. 923, 1949.

Ferguson, J. A.; Seibels, R. E., Jr.; and Corber, R. J.: Flight Tests of the Hydrodynamic Characteristics of a Japanese "Emily" Flying Boat. TN 1968, September 1949.

Kapryan, Walter J.: Effect of Forebody Warp and Increase in Afterbody Length on the Hydrodynamic Qualities of a Flying-Boat Hull of High Length-Beam Ratio. TN 1980, November 1949.

Sottorf, W.: Systematic Model Researches on the Stability Limits of the DVL Series of Float Designs. TM 1254, December 1949.

Whitaker, Walter E., Jr. and Bryce, Paul W., Jr.: Effect of an Increase in Angle of Dead Rise on the Hydrodynamic Characteristics of a High-Length-Beam-Ratio Hull. TN 2297, February 1951.

DIRECTIONAL (2.10.3)

Ferguson, J. A.; Seibels, R. E., Jr.; and Corber, R. J.: Flight Tests of the Hydrodynamic Characteristics of a Japanese "Emily" Flying Boat. TN 1968, September 1949.

PROPULSION

(3)

Complete Systems

(3.1)

Oergel, C. T. and Foote, W. R.: Report on Jet Propulsion. ACR, August 1941.

Goldstein, Arthur W.: Analysis of the Performance of a Jet Engine from Characteristics of the Components. I - Aerodynamic and Matching Characteristics of the Turbine Component Determined with Cold Air. Rept. 878, 1947.

Leist, K. and Knörnschild, E.: Exhaust Turbine and Jet Propulsion Systems. Parts I and II. TM 1294, April 1951.

RECIPROCATING ENGINES

(3.1.1)

Acker, Loren W. and Kleinknecht, Kenneth S.: Flight Comparison of Performance and Cooling Characteristics of Exhaust-Ejector Installation with Exhaust-Collector-Ring Installation. RM E6L13a, February 1947.

SPARK-IGNITION ENGINES (3.1.1.1)

Sather, Bernard I. and Foster, Hampton H.: A Preliminary Evaluation of the Performance of a Uniflow Two-Stroke-Cycle Spark-Ignition Engine Combined with a Blowdown Turbine and a Steady-Flow Turbine. RM E7D29, November 1947.

Olsen, H. Lowell and Miller, Cearcy D.: The Interdependence of Various Types of Autoignition and Knock. Rept. 912, 1948.

Lundin, Bruce T.; Povolny, John H.; and Chelko, Louis J.: Correlation of Cylinder-Head Temperatures and Coolant Heat Rejections of a Multicylinder, Liquid-Cooled Engine of 1710-Cubic-Inch Displacement. Rept. 931, 1949.

Eian, Carroll S.: Effect of Valve Overlap and Compression Ratio on Variation of Measured Performance with Exhaust Pressure of Aircraft Cylinder and on Computed Performance of Compound Power Plant. TN 2025, February 1950.

Povolny, John H.; Bogdan, Louis J.; and Chelko, Louis J.: Cylinder-Head Temperatures and Coolant Heat Rejection of a Multicylinder Liquid-Cooled Engine of 1650-Cubic-Inch Displacement. TN 2069, April 1950.

COMPRESSION-IGNITION (DIESEL) ENGINES (3.1.1.2)

McCoy, J. Arnold and Szel, Frank: Computed Performance of a Composite Engine Based on Experimental Data for a Single-Cylinder Conventional Aircraft Engine Converted to Compression-Ignition Operation. RM E7B03, February 1947.

Tauschek, Max J.; Sather, Bernard I.; and Biermann, Arnold E.: An Analysis of a Highly Compounded Two-Stroke-Cycle Compression-Ignition Engine. RM E8L09, April 1949.

Foster, Hampton H.; Schuricht, F. Ralph; and Tauschek, Max J.: Experimental Study of Loop-Scavenged Compression-Ignition Cylinder for Gas-Generator Use. RM E8L30, April 1949.

RECIPROCATING ENGINES- TURBINES (3.1.2)

Damköhler, Gerhard: Isentropic Phase Changes in Dissociation Gases and the Method of Sound Dispersion for the Investigation of Homogeneous Gas Reactions with Very High Speed. TM 1268, September 1950.

COMPOUND ENGINES
(3.1.2.2)

- McCoy, J. Arnold and Szel, Frank:
Computed Performance of a
Composite Engine Based on Ex-
perimental Data for a Single-
Cylinder Conventional Aircraft
Engine Converted to Compression-
Ignition Operation. RM E7B03,
February 1947.
- Sather, Bernard I. and Foster,
Hampton H.: A Preliminary Eval-
uation of the Performance of a Uni-
flow Two-Stroke-Cycle Spark-
Ignition Engine Combined with a
Blowdown Turbine and a Steady-
Flow Turbine. RM E7D29,
November 1947.
- Tauschek, Max J. and Biermann,
Arnold E.: An Analysis of a
Piston-Type Gas-Generator Engine.
RM E7I10, February 1948.
- Tauschek, Max J.; Sather, Bernard I.;
and Biermann, Arnold E.: An
Analysis of a Highly Compounded
Two-Stroke-Cycle Compression-
Ignition Engine. RM E8L09,
April 1949.
- Foster, Hampton, H.; Schuricht,
F. Ralph; and Tauschek, Max J.:
Experimental Study of Loop-
Scavenged Compression-Ignition
Cylinder for Gas-Generator Use.
RM E8L30, April 1949.
- Eian, Carroll: Effect of Valve Over-
lap and Compression Ratio on Vari-
ation of Measured Performance
with Exhaust Pressure of Aircraft
Cylinder and on Computed Per-
formance of Compound Power Plant.
TN 2025, February 1950.
- Sather, Bernard I. and Tauschek, Max J.:
Study of Compressor Systems for a
Gas-Generator Engine. RM E50H08,
October 1950.

GAS GENERATOR-TURBINE ENGINES
(3.1.2.3)

- Tauschek, Max J. and Biermann,
Arnold E.: An Analysis of a Piston-
Type Gas-Generator Engine. RM
E7I10, February 1948.
- Kochendorfer, Fred D. and Nettles,
J. Cary: An Analytical Method of
Estimating Turbine Performance.
Rept. 930, 1949.
- Hall, Eldon W. and Wilcox, E. Clinton:
Theoretical Comparison of Several
Methods of Thrust Augmentation for
Turbojet Engines. Rept. 992, 1950.

TURBO-JET ENGINES
(3.1.3)

- Goldstein, Arthur W.: Analysis of the
Performance of a Jet Engine from
Characteristics of the Components.
I - Aerodynamic and Matching Char-
acteristics of the Turbine Compo-
nent Determined with Cold Air.
Rept. 878, 1947.
- Pinkel, Benjamin and Karp, Irving M.:
Performance Charts for a Jet-
Propulsion System Consisting of a
Compressor, a Combustion Chamber,
and a Turbine. Rept. 891, 1947.
- Bohanon, H. R. and Wilcox, E. C.:
Theoretical Investigation of Thrust
Augmentation of Turbojet Engines
by Tail-Pipe Burning. RM E6L02,
January 1947.
- Goldstein, Arthur W.; Alpert, Sumner;
Beede, William; and Kovach, Karl:
Analysis of the Performance of a
Jet Engine from Characteristics of
the Components. II - Interaction of
the Components as Determined from
Engine Operation. Rept. 928, 1948.

Turbo-Jet Engines (Cont.)

- Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.
- Turner, L. Richard and Bogart, Donald: Constant-Pressure Combustion Charts Including Effects of Diluent Addition. Rept. 937, 1949.
- Wallner, Lewis E. and Fleming, William A.: Reynolds Number Effect on Axial-Flow Compressor Performance. RM E9G11, September 1949.
- Lundin, Bruce T.: Theoretical Analysis of Various Thrust-Augmentation Cycles for Turbojet Engines. Rept. 981, 1950.
- Sanders, John C. and Chapin, Edward C.: Equilibrium Operating Performance of Axial-Flow Turbojet Engines by Means of Idealized Analysis. Rept. 987, 1950.
- Hensley, Reece V.; Rom, Frank E.; and Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. I - Analytical Method of Performance Evaluation with Compressor-Outlet Air Bleed. TN 2053, March 1950.
- Lubarsky, Bernard: Performance and Load-Range Characteristics of Turbojet Engine in Transonic Speed Range. TN 2088, May 1950.
- Otto, Edward W. and Taylor, Burt L., III: Dynamics of a Turbojet Engine Considered as a Quasi-Static System. TN 2091, May 1950.
- Trout, Arthur M.: Theoretical Turbojet Thrust Augmentation by Evaporation of Water during Compression as Determined by Use of a Mollier Diagram. TN 2104, June 1950.
- Wilcox, E. Clinton: Turbojet Thrust Augmentation by Evaporation of Water Prior to Mechanical Compression as Determined by Use of Psychrometric Chart. TN 2105, June 1950.
- Englert, G. W. and Ross, A. O.: Investigation of First Stage of Two-Stage Turbine Designed for Free-Vortex Flow. TN 2107, June 1950.
- Shames, Harold; Himmel, Seymour C.; and Blivas, Darnold: Frequency Response of Positive-Displacement Variable-Stroke Fuel Pump. TN 2109, June 1950.
- Samuels, John C. and Gale, B. M.: Effect of Humidity on Performance of Turbojet Engines. TN 2119, June 1950.
- Rom, Frank E. and Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. II - Effect of Compressor-Outlet Air Bleed for Specific Modes of Engine Operation. TN 2166, August 1950.
- Fleming, William A.; Wallner, Lewis E.; and Wintler, John T.: Effect of Compressor-Outlet Bleedoff on Turbojet-Engine Performance. RM E50E17, August 1950.
- Heidmann, Marcus F.: Analysis of Effect of Variations in Primary Variables on Time Constant and Turbine-Inlet-Temperature Overshoot of Turbojet Engine. TN 2182, September 1950.
- Koutz, Stanley L.; Hensley, Reece V.; and Rom, Frank E.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. III - Analytical Determination of Effects of Shaft-Power Extraction. TN 2202, October 1950.
- Kovach, Karl; Beede, William L.; and Hamrick, Joseph T.: Experimental Evaluation by Thermodynamic Methods of Work Input to a Centrifugal Compressor Operating with Water Injection. RM E50J31, January 1951.
- Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. IV - Analytical Determination of Effects of Hot-Gas Bleed. TN 2304, March 1951.

Turbo-Jet Engines (Cont.)

Leist, K. and Knörnschild, E.: Exhaust Turbine and Jet Propulsion Systems. Parts I and II. TM 1294, April 1951.

Weinig, F.: Flight Performance of a Jet Power Plant. III - Operating Characteristics of a Jet Power Plant as a Function of Altitude. TM 1258, May 1951.

TURBO-PROPELLER ENGINES
(3.1.4)

Goldstein, Arthur W.; Alpert, Sumner; Beede, William; and Kovach, Karl: Analysis of the Performance of a Jet Engine from Characteristics of the Components. II - Interaction of the Components as Determined from Engine Operation. Rept. 928, 1948.

Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.

Heidmann, Marcus F.: Method of Determining Conditions of Maximum Efficiency of an Independent Turbine-Propeller Combination. TN 1951, September 1949.

Shames, Harold; Himmel, Seymour C.; and Blivas, Darnold: Frequency Response of Positive-Displacement Variable-Stroke Fuel Pump. TN 2109, June 1950.

Nagey, Tibor F. and Martin, Cecil G.: Calculated Engine Performance and Airplane Range for Variety of Turbine-Propeller Engines. TN 2155, August 1950.

Trout, Arthur M. and Hall, Eldon W.: Method for Determining Optimum Division of Power between Jet and Propeller for Maximum Thrust Power of a Turbine-Propeller Engine. TN 2178, September 1950.

Taylor, Burt L., III and Oppenheimer, Frank L.: Investigation of Frequency-Response Characteristics of Engine Speed for a Typical Turbine-Propeller Engine. TN 2184, September 1950.

Manson, S. V.: Regenerator-Design Study and Its Application to Turbine-Propeller Engines. TN 2254, January 1951.

Leist, K. and Knörnschild, E.: Exhaust Turbine and Jet Propulsion Systems. Parts I and II. TM 1294, April 1951.

DUCTED PROPELLER ENGINES
(3.1.5)

Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.

PULSE JET ENGINES
(3.1.6)

Donaldson, Coleman duP. and Sullivan, Roger D.: The Effect of Wall Friction on the Strength of Shock Waves in Tubes and Hydraulic Jumps in Channels. TN 1942, September 1949.

Leist, K. and Knörnschild, E.: Exhaust Turbine and Jet Propulsion Systems. Parts I and II. TM 1294, April 1951.

RAM JET ENGINES
(3.1.7)

Leist, K. and Knörnschild, E.: Exhaust Turbine and Jet Propulsion Systems. Parts I and II. TM 1294, April 1951.

Henry, John R. and Bennett, J. Buel: Method for Calculation of Ram-Jet Performance. TN 2357, June 1951.

ROCKET ENGINES

(3.1.8)

Gantmacher, F. R. and Levin, L. M.:
Equations of Motion of a Rocket.
TM 1255, April 1950.

Roy, Maurice: Theoretical Investigations
on the Efficiency and the Conditions
for the Realization of Jet Engines.
TM 1259, June 1950.

JET-DRIVEN ROTORS

(3.1.9)

Roy, Maurice: Theoretical Investigations
on the Efficiency and the Conditions
for the Realization of Jet Engines.
TM 1259, June 1950.

Gessow, Alfred: An Analysis of the
Autorotative Performance of a
Helicopter Powered by Rotor-Tip
Jet Units. TN 2154, July 1950.

COMPARISON OF ENGINE TYPES

(3.1.12)

Roy, Maurice: Theoretical Investigations
on the Efficiency and the Conditions
for the Realization of Jet Engines.
TM 1259, June 1950.

Nagey, Tibor F. and Martin, Cecil G.:
Calculated Engine Performance and
Airplane Range for Variety of
Turbine-Propeller Engines. TN
2155, August 1950.

Trout, Arthur M. and Hall, Eldon W.:
Method for Determining Optimum
Division of Power between Jet and
Propeller for Maximum Thrust
Power of a Turbine-Propeller En-
gine. TN 2178, September 1950.

Manson, S. V.: Regenerator-Design
Study and Its Application to Turbine-
Propeller Engines. TN 2254, Janu-
ary 1951.

Leist, K. and Knörnschild, E.: Exhaust
Turbine and Jet Propulsion Systems.
Parts I and II. TM 1294, April 1951.

Control of Engines (3.2)

CHARGING AND CONTROL OF RECIPROCATING ENGINES (3.2.1)

Cook, Harvey A.; Heinicke, Orville H.; and Haynie, William H.: Spark-Timing Control Based on Correlation of Maximum-Economy Spark Timing, Flame-Front Travel, and Cylinder Pressure Rise. Rept. 886, 1947.

Eian, Carroll S.: Effect of Valve Overlap and Compression Ratio on Variation of Measured Performance with Exhaust Pressure of Aircraft Cylinder and on Computed Performance of Compound Power Plant. TN 2025, February 1950.

COMPOUND ENGINES (3.2.1.3)

Cesaro, Richard S. and Matz, Norman: Pressure-Sensitive System for Gas-Temperature Control. Rept. 896, 1948.

CONTROL OF TURBOJET ENGINES (3.2.2)

Cesaro, Richard S. and Matz, Norman: Pressure-Sensitive System for Gas-Temperature Control. Rept. 896, 1948.

Delio, Gene J.; Schwent, Glennon V.; and Cesaro, Richard S.: Transient Behavior of Lumped-Constant Systems for Sensing Gas Pressures. TN 1988, December 1949.

LaVerne, Melvin E. and Boksenbom, Aaron S.: Methods for Determining Frequency Response of Engines and Control Systems from Transient Data. Rept. 977, 1950.

Boksenbom, Aaron S. and Hood, Richard: General Algebraic Method Applied to Control Analysis of Complex Engine Types. Rept. 980, 1950.

Sanders, John C. and Chapin, Edward C.: Equilibrium Operating Performance of Axial-Flow Turbojet Engines by Means of Idealized Analysis. Rept. 987, 1950.

Cesaro, Richard S.; Koenig, Robert J.; and Pack, George J.: Experimental Analysis of a Pressure-Sensitive System for Sensing Gas Temperature. TN 2043, February 1950.

Koenig, Robert J. and Cesaro, Richard S.: Investigation of Spark-Over Voltage - Density Relation for Gas-Temperature Sensing. TN 2090, May 1950.

Otto, Edward W. and Taylor, Burt L. III: Dynamics of a Turbojet Engine Considered as a Quasi-Static System. TN 2091, May 1950.

Shames, Harold; Himmel, Seymour C.; and Blivas, Darnold: Frequency Response of Positive-Displacement Variable-Stroke Fuel Pump. TN 2109, June 1950.

Heidmann, Marcus F.: Analysis of Effect of Variations in Primary Variables on Time Constant and Turbine-Inlet-Temperature Overshoot of Turbojet Engine. TN 2182, September 1950.

Feder, Melvin S. and Hood, Richard: Analysis for Control Application of Dynamic Characteristics of Turbojet Engine with Tail-Pipe Burning. TN 2183, September 1950.

TURBINE-RAMJET ENGINES (3.2.3)

Cesaro, Richard S. and Matz, Norman:
Pressure-Sensitive System for
Gas-Temperature Control. Rept.
896, 1948.

Delio, Gene J.; Schwent, Glennon V.;
and Cesaro, Richard S.: Transient
Behavior of Lumped-Constant Sys-
tems for Sensing Gas Pressures.
TN 1988, December 1949.

Cesaro, Richard S.; Koenig, Robert J.;
and Pack, George J.: Experi-
mental Analysis of a Pressure-
Sensitive System for Sensing Gas
Temperature. TN 2043, February
1950.

TURBINE-PROPELLER ENGINES (3.2.4)

Cesaro, Richard S. and Matz, Norman:
Pressure-Sensitive System for Gas-
Temperature Control. Rept. 896,
1948.

Heidmann, Marcus F.: Method of De-
termining Conditions of Maximum
Efficiency of an Independent
Turbine-Propeller Combination.
TN 1951, September 1949.

Delio, Gene J.; Schwent, Glennon V.;
and Cesaro, Richard S.: Transient
Behavior of Lumped-Constant Sys-
tems for Sensing Gas Pressures.
TN 1988, December 1949.

Cesaro, Richard S.; Koenig, Robert J.;
and Pack, George J.: Experimental
Analysis of a Pressure-Sensitive
System for Sensing Gas Tempera-
ture. TN 2043, February 1950.

Koenig, Robert J. and Cesaro,
Richard S.: Investigation of Spark-
Over Voltage - Density Relation for
Gas-Temperature Sensing. TN
2090, May 1950.

Trout, Arthur M. and Hall, Eldon W.:
Method for Determining Optimum
Division of Power between Jet and
Propeller for Maximum Thrust
Power of a Turbine-Propeller En-
gine. TN 2178, September 1950.

Taylor, Burt L., III and Oppenheimer,
Frank L.: Investigation of
Frequency-Response Characteris-
tics of Engine Speed for a Typical
Turbine-Propeller Engine. TN
2184, September 1950.

PULSE-JET ENGINES (3.2.5)

Cesaro, Richard S. and Matz, Norman:
Pressure-Sensitive System for Gas-
Temperature Control. Rept. 896,
1948.

Delio, Gene J.; Schwent, Glennon V.;
and Cesaro, Richard S.: Transient
Behavior of Lumped-Constant Sys-
tems for Sensing Gas Pressures.
TN 1988, December 1949.

RAMJET ENGINES (3.2.6)

Cesaro, Richard S. and Matz, Norman:
Pressure-Sensitive System for Gas-
Temperature Control. Rept. 896,
1948.

Delio, Gene J.; Schwent, Glennon V.;
and Cesaro, Richard S.: Transient
Behavior of Lumped-Constant Sys-
tems for Sensing Gas Pressures.
TN 1988, December 1949.

GAS GENERATOR ENGINES (3.2.8)

Cesaro, Richard S. and Matz, Norman:
Pressure-Sensitive System for Gas-
Temperature Control. Rept. 896,
1948.

Auxiliary Booster Systems

(3.3)

GAS TURBINES

(3.3.2)

- Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.
- Koutz, Stanley L.; Hensley, Reece V.; and Rom, Frank E.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. III - Analytical Determination of Effects of Shaft-Power Extraction. TN 2202, October 1950.

LIQUID INJECTION

(3.3.2.1)

- Turner, L. Richard and Bogart, Donald: Constant-Pressure Combustion Charts Including Effects of Diluent Addition. Rept. 937, 1949.
- Hamrick, Joseph T. and Beede, William L.: Method of Determining Centrifugal-Flow-Compressor Performance with Water Injection. RM E9G12, September 1949.
- Lundin, Bruce T.: Theoretical Analysis of Various Thrust-Augmentation Cycles for Turbojet Engines. Rept. 981, 1950.
- Hall, Eldon W. and Wilcox, E. Clinton: Theoretical Comparison of Several Methods of Thrust Augmentation for Turbojet Engines. Rept. 992, 1950.
- Trout, Arthur M.: Theoretical Turbojet Thrust Augmentation by Evaporation of Water during Compression as Determined by Use of a Mollier Diagram. TN 2104, June 1950.

Wilcox, E. Clinton: Turbojet Thrust Augmentation by Evaporation of Water Prior to Mechanical Compression as Determined by Use of Psychrometric Chart. TN 2105, June 1950.

Chelko, Louis J.: Penetration of Liquid Jets into a High-Velocity Air Stream. RM E50F21, August 1950.

Kovach, Karl; Beede, William L.; and Hamrick, Joseph T.: Experimental Evaluation by Thermodynamic Methods of Work Input to a Centrifugal Compressor Operating with Water Injection. RM E50J31, January 1951.

AFTERBURNING

(3.3.2.2)

- Bohanon, H. R. and Wilcox, E. C.: Theoretical Investigation of Thrust Augmentation of Turbojet Engines by Tail-Pipe Burning. RM E6L02, January 1947.
- Cesaro, Richard S. and Matz, Norman: Pressure-Sensitive System for Gas-Temperature Control. Rept. 896, 1948.
- Lundin, Bruce T.: Theoretical Analysis of Various Thrust-Augmentation Cycles for Turbojet Engines. Rept. 981, 1950.
- Hall, Eldon W. and Wilcox, E. Clinton: Theoretical Comparison of Several Methods of Thrust Augmentation for Turbojet Engines. Rept. 992, 1950.
- Feder, Melvin S. and Hood, Richard: Analysis for Control Application of Dynamic Characteristics of Turbojet Engine with Tail-Pipe Burning. TN 2183, September 1950.

Afterburning - Auxiliary Booster Systems
(Cont.)

Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. IV - Analytical Determination of Effects of Hot-Gas Bleed. TN 2304, March 1951.

BLEEDOFF
(3.3.2.3)

Lundin, Bruce T.: Theoretical Analysis of Various Thrust-Augmentation Cycles for Turbojet Engines. Rept. 981, 1950.

Hensley, Reece V.; Rom, Frank E.; and Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. I - Analytical Method of Performance Evaluation with Compressor-Outlet Air Bleed. TN 2053, March 1950.

Rom, Frank E. and Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. II - Effect of Compressor-Outlet Air Bleed for Specific Modes of Engine Operation. TN 2166, August 1950.

Fleming, William A.; Wallner, Lewis E.; and Wintler, John T.: Effect of Compressor-Outlet Bleedoff on Turbojet-Engine Performance. RM E50E17, August 1950.

Fuels (3.4)

Barnett, Henry C.: Estimation of F-3 and F-4 Knock-Limited Performance Ratings for Ternary and Quaternary Blends Containing Triptane or Other High-Antiknock Aviation-Fuel Blending Agents. Rept. 904, 1948.

PREPARATION (3.4.1)

Slabey, Vernon A. and Wise, P. H.: Synthesis of Cyclopropane Hydrocarbons from Methylcyclopropyl Ketone. I - 2-Cyclopropylpropene and 2-Cyclopropylpropane. TN 2258, January 1951.

Slabey, Vernon A. and Wise, P. H.: Synthesis of Cyclopropane Hydrocarbons from Methylcyclopropyl Ketone. II - 2-Cyclopropyl-1-pentene, *cis* and *trans* 2-Cyclopropyl-2-pentene and 2-Cyclopropylpentane. TN 2259, January 1951.

Goodman, Irving A. and Wise, Paul H.: Synthesis and Purification of Some Alkylbiphenyls and Alkylbicyclohexyls. TN 2260, January 1951.

Tannenbaum, Stanley and Murphy, Maurice F.: The Preparation, Physical Properties, and Heats of Combustion of Four Alkylsilanes. RM E51A05, March 1951.

Reynolds, Thaine W. and Sugimura, George H.: Evaluation of Packed Distillation Columns. I - Atmospheric Pressure. TN 2342, April 1951.

PHYSICAL AND CHEMICAL PROPERTIES

(3.4.2)

Cleaves, Alden P. and Carver, Mildred S.: Application of an Ultraviolet Spectrophotometric Method to the Estimation of Alkyl-naphthalenes in 10 Experimental Jet-Propulsion Fuels. RM E6K08, April 1947.

Wise, P. H.; Serijan, K. T.; and Goodman, I. A.: Correlation of Physical Properties with Molecular Structure for Dicyclic Hydrocarbons. I - 2-n-Alkylbiphenyl, 1,1-Diphenylalkane, α,ω -Diphenylalkane, 1,1-Dicyclohexylalkane, and α,ω -Dicyclohexylalkane Series. TN 2081, May 1950.

Spakowski, A. E.; Evans, A.; and Hibbard, R. R.: Determination of Aromatics and Olefins in Wide-Boiling Petroleum Fractions. RM E50D03, June 1950.

Huff, Vearl N. and Gordon, Sanford: Tables of Thermodynamic Functions for Analysis of Aircraft-Propulsion Systems. TN 2161, August 1950.

Dugger, Gordon L.: Effect of Initial Mixture Temperature on Flame Speeds and Blow-Off Limits of Propane - Air Flames. TN 2170, August 1950.

Lamneck, John H., Jr. and Wise, Paul H.: Synthesis and Purification of Alkyl-diphenylmethane Hydrocarbons. I - 2-Methyldiphenylmethane, 3-Methyldiphenylmethane, 2-Ethyldiphenylmethane, 4-Ethyldiphenylmethane, and 4-Isopropyldiphenylmethane. TN 2230, December 1950.

Physical and Chemical Properties (Cont.)

Jackson, Joseph L.: Spontaneous Ignition Temperatures of Pure Hydrocarbons and Commercial Fluids. RM E50J10, December 1950.

Slabey, Vernon A. and Wise, P. H.: Synthesis of Cyclopropane Hydrocarbons from Methylcyclopropyl Ketone. I - 2-Cyclopropylpropene and 2-Cyclopropylpropane. TN 2258, January 1951.

Slabey, Vernon A. and Wise, P. H.: Synthesis of Cyclopropane Hydrocarbons from Methylcyclopropyl Ketone. II - 2-Cyclopropyl-1-pentene, *cis* and *trans* 2-Cyclopropyl-2-pentene and 2-Cyclopropylpentane. TN 2259, January 1951.

Goodman, Irving A. and Wise, Paul H.: Synthesis and Purification of Some Alkylbiphenyls and Alkylbicyclohexyls. TN 2260, January 1951.

Tannenbaum, Stanley and Murphy, Maurice F.: The Preparation, Physical Properties, and Heats of Combustion of Four Alkylsilanes. RM E51A05, March 1951.

Dugger, Gordon L.: Effect of Initial Mixture Temperature on Flame Speed of Methane-Air, Propane-Air, and Ethylene-Air Mixtures. TN 2374, May 1951.

RELATION TO ENGINE PERFORMANCE

(3.4.3)

Barnett, Henry C.: Estimation of F-3 and F-4 Knock-Limited Performance Ratings for Ternary and Quaternary Blends Containing Triptane or Other High-Antiknock Aviation-Fuel Blending Agents. Rept. 904, 1948.

Olsen, H. Lowell and Miller, Cearcy D.: The Interdependence of Various Types of Autoignition and Knock. Rept. 912, 1948.

Barnett, Henry C.: Antiknock Evaluation of Hydrocarbons and Ethers as Aviation Fuel Components. RM E50H02, October 1950.

RECIPROCATING ENGINES (3.4.3.1)

Jovellanos, J. U.; Taylor, E. S.; Taylor, C. F.; and Leary, W. A.: An Investigation of the Effects of Tetraethyl Lead and Ethyl Nitrite on the Autoignition Characteristics of Isooctane and Triptane. TN 2127, June 1950.

Spark-Ignition (3.4.3.1.1)

Brun, Rinaldo J.; Feder, Melvin S.; and Harries, Myron L.: Minimum Specific Fuel Consumption of a Liquid-Cooled Multicylinder Aircraft Engine as Affected by Compression Ratio and Engine Operating Conditions. RM E6L31, April 1947.

Osterstrom, Gordon E.: Knocking Combustion Observed in a Spark-Ignition Engine with Simultaneous Direct and Schlieren High-Speed Motion Pictures and Pressure Records. Rept. 897, 1948.

Barnett, Henry C.: Estimation of F-3 and F-4 Knock-Limited Performance Ratings for Ternary and Quaternary Blends Containing Triptane or Other High-Antiknock Aviation-Fuel Blending Agents. Rept. 904, 1948.

Olsen, H. Lowell and Miller, Cearcy D.: The Interdependence of Various Types of Autoignition and Knock. Rept. 912, 1948.

Drell, I. L. and Alquist, H. E.: Knock-Limited Performance of Fuel Blends Containing Aromatics. VI - 10 Alkylbenzenes. TN 1994, December 1949.

Spark-Ignition - Relation to Engine
Performance (Cont.)

Tower, Leonard K. and Alquist,
Henry E.: Correlation of Effects
of Fuel-Air Ratio, Compression
Ratio, and Inlet-Air Temperature
on Knock Limits of Aviation Fuels.
TN 2066, April 1950.

Drell, I. L. and Branstetter, J. R.:
Knock-Limited Performance of
Fuel Blends Containing Ethers.
TN 2070, April 1950.

**TURBINE ENGINES,
RAM JETS, AND PULSE JETS
(3.4.3.2)**

Childs, J. Howard; McCafferty,
Richard J.; and Surine, Oakley W.:
Effect of Combustor-Inlet Condi-
tions on Performance of an Annu-
lar Turbojet Combustor. Rept.
881, 1947.

Jonash, Edmund R.; Barnett, Henry C.;
and Stricker, Edward G.: Investi-
gation of Carbon Deposition in an
I-16 Jet-Propulsion Engine at
Static Sea-Level Conditions. RM
E6K01, April 1947.

Cleaves, Alden P. and Carver, Mildred S.:
Application of an Ultraviolet Spectro-
photometric Method to the Estimation
of Alkyl-naphthalenes in 10 Experi-
mental Jet-Propulsion Fuels. RM
E6K08, April 1947.

Spakowski, A. E.; Evans, A.; and
Hibbard, R. R.: Determination of
Aromatics and Olefins in Wide-
Boiling Petroleum Fractions. RM
E50D03, June 1950.

**ROCKETS
(INCLUDES FUEL AND OXIDANT)
(3.4.3.3)**

Huff, Vearl N. and Morrell, Virginia E.:
General Method for Computation of
Equilibrium Composition and
Temperature of Chemical Reactions.
TN 2113, June 1950.

Roy, Maurice: Theoretical Investigations
on the Efficiency and the Conditions
for the Realization of Jet Engines.
TM 1259, June 1950.

Combustion and Combustors

(3.5)

GENERAL COMBUSTION

RESEARCH

(3.5.1)

- Olsen, H. Lowell and Miller, Cearcy D.: The Interdependence of Various Types of Autoignition and Knock. Rept. 912, 1948.
- Bollinger, Lowell M. and Williams, David T.: Experiments on Stability of Bunsen-Burner Flames for Turbulent Flow. Rept. 913, 1948.
- Turner, L. Richard and Bogart, Donald: Constant-Pressure Combustion Charts Including Effects of Diluent Addition. Rept. 937, 1949.
- Huff, Vearl N. and Morrell, Virginia E.: General Method for Computation of Equilibrium Composition and Temperature of Chemical Reactions. TN 2113, June 1950.
- Blackshear, Perry L.: Sonic-Flow-Orifice Temperature Probe for High-Gas-Temperature Measurements. TN 2167, September 1950.
- Gerstein, Melvin; Levine, Oscar; and Wong, Edgar L.: Fundamental Flame Velocities of Pure Hydrocarbons. I - Alkanes, Alkenes, Alkynes, Benzene, and Cyclohexane. RM E50G24, September 1950.
- Levine, Oscar; Wong, Edgar L.; and Gerstein, Melvin: Fundamental Flame Velocities of Pure Hydrocarbons. II - Alkadienes. RM E50H25, November 1950.
- Jackson, Joseph L.: Spontaneous Ignition Temperatures of Pure Hydrocarbons and Commercial Fluids. RM E50J10, December 1950.
- Slabey, Vernon A. and Wise, P. H.: Synthesis of Cyclopropane Hydrocarbons from Methylcyclopropyl Ketone. I - 2-Cyclopropylpropene and 2-Cyclopropylpropane. TN 2258, January 1951.
- Slabey, Vernon A. and Wise, P. H.: Synthesis of Cyclopropane Hydrocarbons from Methylcyclopropyl Ketone. II - 2-Cyclopropyl-1-pentene, cis and trans 2-Cyclopropyl-2-pentene and 2-Cyclopropylpentane. TN 2259, January 1951.
- Heidmann, Marcus F. and Humphrey, Jack C.: Fluctuations in a Spray Formed by Two Impinging Jets. TN 2349, April 1951.
- DiPiazza, James T.: Limits of Flammability of Pure Hydrocarbon-Air Mixtures at Reduced Pressures and Room Temperature. RM E51C28, May 1951.

LAMINAR-FLOW (3.5.1.1)

- Hahnemann, H. and Ehret, L.: Effect of Intense Sound Waves on a Stationary Gas Flame. TM 1271, July 1950.
- Dugger, Gordon L.: Effect of Initial Mixture Temperature on Flame Speeds and Blow-Off Limits of Propane - Air Flames. TN 2170, August 1950.
- Clark, Thomas P.: Method for Determining Distribution of Luminous Emitters in Cone of Laminar Bunsen Flame. TN 2246, January 1951.
- Dugger, Gordon L.: Effect of Initial Mixture Temperature on Flame Speed of Methane-Air, Propane-Air, and Ethylene-Air Mixtures. TN 2374, May 1951.

TURBULENT FLOW
(3.5.1.2)

Bollinger, Lowell M. and Williams, David T.: Effect of Reynolds Number in the Turbulent-Flow Range on Flame Speeds of Bunsen-Burner Flames. Rept. 932, 1949.

Dugger, Gordon L.: Effect of Initial Mixture Temperature on Flame Speeds and Blow-Off Limits of Propane - Air Flames. TN 2170, August 1950.

Belles, Frank E.: A Preliminary Investigation of Wall Effects on Pressure-Inflammability Limits of Propane-Air Mixtures. RM E50J10a, December 1950.

DETONATION
(3.5.1.3)

Jovellanos, J. U.; Taylor, E. S.; Taylor, C. F.; and Leary, W. A.: An Investigation of the Effects of Tetraethyl Lead and Ethyl Nitrite on the Autoignition Characteristics of Isooctane and Triptane. TN 2127, June 1950.

Zeldovich, Y. B.: On the Theory of the Propagation of Detonation in Gaseous Systems. TM 1261, November 1950.

EFFECTS OF FUEL ATOMIZATION
(3.5.1.4)

Heidmann, Marcus F. and Humphrey, Jack C.: Fluctuations in a Spray Formed by Two Impinging Jets. TN 2349, April 1951.

REACTION MECHANISMS
(3.5.1.5)

McDonald, Glen E.: Measurement of Uniform Flame Movement in Carbon Monoxide - Air Mixtures Containing Either Added D₂O or H₂O. RM E50C10, July 1950.

Damköhler, Gerhard: Isentropic Phase Changes in Dissociation Gases and the Method of Sound Dispersion for the Investigation of Homogeneous Gas Reactions with Very High Speed. TM 1268, September 1950.

Damköhler, Gerhard: Isentropic Phase Changes in Dissociating Gases and the Method of Sound Dispersion for the Investigation of Homogeneous Gas Reactions with Very High Speed. TM 1269, September 1950.

Clark, Thomas P.: Method for Determining Distribution of Luminous Emitters in Cone of Laminar Bunsen Flame. TN 2246, January 1951.

Sanger, E.; Görtzke, P.; and Bredt, I.: On Ionization and Luminescence in Flames. TM 1305, April 1951.

IGNITION OF GASES
(3.5.1.6)

Olsen, H. Lowell and Miller, Cearcy D.: The Interdependence of Various Types of Autoignition and Knock. Rept. 912, 1948.

Scull, Wilfred E.: Relation between Inflammables and Ignition Sources in Aircraft Environments. TN 2227, December 1950.

Belles, Frank E.: A Preliminary Investigation of Wall Effects on Pressure-Inflammability Limits of Propane-Air Mixtures. RM E50J10a, December 1950.

DiPiazza, James T.: Limits of Flammability of Pure Hydrocarbon-Air Mixtures at Reduced Pressures and Room Temperature. RM E51C28, May 1951.

**EFFECT OF ENGINE
OPERATING CONDITIONS
& COMBUSTION CHAMBER
GEOMETRY**
(3.5.2)

Cook, Harvey A.; Heinicke, Orville H.; and Haynie, William H.: Spark-Timing Control Based on Correlation of Maximum-Economy Spark Timing, Flame-Front Travel, and Cylinder Pressure Rise. Rept. 886, 1947.

Effect of Engine Operating Conditions
and Combustion Chamber Geometry (Cont.)

Belles, Frank E.: A Preliminary Investigation of Wall Effects on Pressure-Inflammability Limits of Propane-Air Mixtures. RM E50J10a, December 1950.

Spark-Ignition Engines
(3.5.2.1.1)

Brun, Rinaldo J.; Feder, Melvin S.; and Harries, Myron L.: Minimum Specific Fuel Consumption of a Liquid-Cooled Multicylinder Aircraft Engine as Affected by Compression Ratio and Engine Operation Conditions. RM E6L31, April 1947.

Osterstrom, Gordon E.: Knocking Combustion Observed in a Spark-Ignition Engine with Simultaneous Direct and Schlieren High-Speed Motion Pictures and Pressure Records. Rept. 897, 1948.

Olsen, H. Lowell and Miller, Cearcy D.: The Interdependence of Various Types of Autoignition and Knock. Rept. 912, 1948.

Tower, Leonard K. and Alquist, Henry E.: Correlation of Effects of Fuel-Air Ratio, Compression Ratio, and Inlet-Air Temperature on Knock Limits of Aviation Fuels. TN 2066, April 1950.

TURBINE ENGINES
(3.5.2.2)

Childs, J. Howard; McCafferty, Richard J.; and Surine, Oakley W.: Effect of Combustor-Inlet Conditions on Performance of an Annular Turbojet Combustor. Rept. 881, 1947.

Bohanon, H. R. and Wilcox, E. C.: Theoretical Investigation of Thrust Augmentation of Turbojet Engines by Tail-Pipe Burning. RM E6L02, January 1947.

Jonash, Edmund R.; Barnett, Henry C.; and Stricker, Edward G.: Investigation of Carbon Deposition in an I-16 Jet-Propulsion Engine at Static Sea-Level Conditions. RM E6K01, April 1947.

Turner, L. Richard and Bogart, Donald: Constant-Pressure Combustion Charts Including Effects of Diluent Addition. Rept. 937, 1949.

RAM JET ENGINES
(3.5.2.3)

Henry, John R. and Bennett, J. Buel: Method for Calculation of Ram-Jet Performance. TN 2357, June 1951.

Compression and Compressors

(3.6)

Trout, Arthur M.: Theoretical Turbojet Thrust Augmentation by Evaporation of Water during Compression as Determined by Use of a Mollier Diagram. TN 2104, June 1950.

FLOW THEORY AND EXPERIMENT

(3.6.1)

Wright, Linwood C.: Investigation to Determine Contraction Ratio for Supersonic-Compressor Rotor. RM E7L23, April 1948.

Ritter, William K. and Johnsen, Irving A.: Performance of 24-Inch Supersonic Axial-Flow Compressor in Air. I - Performance of Compressor Rotor at Design Tip Speed of 1600 Feet per Second. RM E7L10, May 1948.

Ginsburg, Ambrose; Creagh, John W. R.; and Ritter, William K.: Performance Investigation of a Large Centrifugal Compressor from an Experimental Turbojet Engine. RM E8H13, October 1948.

Brown, W. Byron and Bradshaw, Guy R.: Design and Performance of Family of Diffusing Scrolls with Mixed-Flow Impeller and Vaneless Diffuser. Rept. 936, 1949.

Finger, Harold B.; Schum, Harold J.; and Buckner, Howard A., Jr.: Investigation of Inlet Guide Vanes for a Multistage Axial-Flow Compressor. TN 1954, October 1949.

Wu, Chung-Hua; Sinnette, John T., Jr.; and Forrette, Robert E.: Theoretical Effect of Inlet-Hub-Tip-Radius Ratio and Design Specific Mass Flow on Design Performance of Axial-Flow Compressors. TN 2068, April 1950.

Wu, Chung-Hua: Formulas and Tables of Coefficients for Numerical Differentiation with Function Values Given at Unequally Spaced Points and Application to Solution of Partial Differential Equations. TN 2214, November 1950.

Savage, Melvyn and Westphal, Willard R.: Analysis of the Effects of Design Pressure Ratio per Stage and Off-Design Efficiency on the Operating Range of Multistage Axial-Flow Compressors. TN 2248, December 1950.

Boxer, Emanuel: Influence of Wall Boundary Layer upon the Performance of an Axial-Flow Fan Rotor. TN 2291, February 1951.

Wu, Chung-Hua: General Through-Flow Theory of Fluid Flow with Subsonic or Supersonic Velocity in Turbomachines of Arbitrary Hub and Casing Shapes. TN 2302, March 1951.

Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including Those of Rotating System. TN 2310, March 1951.

AXIAL FLOW (3.6.1.1)

Sinnette, John T., Jr.: Some Methods of Analyzing the Effect of Basic Design Variables on Axial-Flow Compressor Performance. Rept. 901, 1948.

Sinnette, John T., Jr. and Voss, William J.: Extension of Useful Operating Range of Axial-Flow Compressor by Use of Adjustable Stator Blades. Rept. 915, 1948.

Wright, Linwood C.: Investigation to Determine Contraction Ratio for Supersonic-Compressor Rotor. RM E7L23, April 1948.

Axial Flow Theory and Experiment (Cont.)

- Ritter, William K. and Johnsen, Irving A.: Performance of 24-Inch Supersonic Axial-Flow Compressor in Air. I - Performance of Compressor Rotor at Design Tip Speed of 1600 Feet per Second. RM E7L10, May 1948.
- Wallner, Lewis E. and Fleming, William A.: Reynolds Number Effect on Axial-Flow Compressor Performance. RM E9G11, September 1949.
- Finger, Harold B.; Schum, Harold J.; and Buckner, Howard A., Jr.: Investigation of Inlet Guide Vanes for a Multistage Axial-Flow Compressor. TN 1954, October 1949.
- Goldstein, Arthur W. and Mager, Artur: Attainable Circulation of Airfoils in Cascade. Rept. 953, 1950.
- Wu, Chung-Hua and Wolfenstein, Lincoln: Application of Radial-Equilibrium Condition to Axial-Flow Compressor and Turbine Design. Rept. 955, 1950.
- Kantrowitz, Arthur: The Supersonic Axial-Flow Compressor. Rept. 974, 1950.
- Erwin, John R. and Emery, James C.: Effect of Tunnel Configuration and Testing Technique on Cascade Performance. TN 2028, February 1950.
- Finger, Harold B.: Method of Experimentally Determining Radial Distributions of Velocity through Axial-Flow Compressor. TN 2059, April 1950.
- Wu, Chung-Hua; Sinnette, John T., Jr.; and Forrette, Robert E.: Theoretical Effect of Inlet Hub-Tip-Radius Ratio and Design Specific Mass Flow on Design Performance of Axial-Flow Compressors. TN 2088, April 1950.
- Hansen, Arthur G. and Yohner, Peggy L.: A Numerical Procedure for Designing Cascade Blades with Prescribed Velocity Distribution in Incompressible Flow. TN 2101, June 1950.

- Lieblein, Seymour: Turning-Angle Design Rules for Constant-Thickness Circular-Arc Inlet Guide Vanes in Axial Annular Flow. TN 2179, September 1950.
- Mahoney, John J.; Dugan, Paul D.; Budinger, Raymond E.; and Goelzer, H. Fred: Investigation of Blade-Row Flow Distributions in Axial-Flow Compressor Stage Consisting of Guide Vanes and Rotor-Blade Row. RM E50G12, November 1950.
- Lieblein, Seymour and Sandercock, Donald M.: Compressibility Corrections for Turning Angles of Axial-Flow Inlet Guide Vanes. TN 2215, December 1950.
- Savage, Melvyn and Westphal, Willard R.: Analysis of the Effects of Design Pressure Ratio per Stage and Off-Design Efficiency on the Operating Range of Multistage Axial-Flow Compressors. TN 2248, December 1950.
- Wu, Chung-Hua: Survey of Available Information on Internal Flow Losses through Axial Turbomachines. RM E50J13, January 1951.
- Sinnette, John T., Jr. and Costello, George R.: Possible Application of Blade Boundary-Layer Control to Improvement of Design and Off-Design Performance of Axial-Flow Turbomachines. TN 2371, May 1951.

RADIAL FLOW
(3.6.1.2)

- Stanitz, John D.: Two-Dimensional Compressible Flow in Turbomachines with Conical Flow Surfaces. Rept. 935, 1949.
- Hamrick, Joseph T. and Beede, William L.: Method of Determining Centrifugal-Flow-Compressor Performance with Water Injection. RM E9G12, September 1949.
- Stanitz, John D. and Ellis, Gaylord O.: Two-Dimensional Compressible Flow in Centrifugal Compressors with Straight Blades. Rept. 954, 1950.

Radial Flow Theory and Experiment (Cont.)

Hamrick, Joseph T.; Ginsburg, Ambrose; and Osborn, Walter M.: Method of Analysis for Compressible Flow through Mixed-Flow Centrifugal Impellers of Arbitrary Design. TN 2165, August 1950.

Rebeske, John J.; Parisen, Richard B.; and Schum, Harold J.: Investigation of Centrifugal Compressor Operated as a Centripetal Refrigeration Turbine. RM E50I20, December 1950.

Ellis, Gaylord O. and Stanitz, John D.: Two-Dimensional Compressible Flow in Centrifugal Compressors with Logarithmic-Spiral Blades. TN 2255, January 1951.

Kovach, Karl; Beede, William L.; and Hamrick, Joseph T.: Experimental Evaluation by Thermodynamic Methods of Work Input to a Centrifugal Compressor Operating with Water Injection. RM E50J31, January 1951.

MIXED FLOW
(3.6.1.3)

Stanitz, John D.: Two-Dimensional Compressible Flow in Turbomachines with Conical Flow Surfaces. Rept. 935, 1949.

Brown, W. Byron and Bradshaw, Guy R.: Design and Performance of Family of Diffusing Scrolls with Mixed-Flow Impeller and Vaneless Diffuser. Rept. 936, 1949.

Stanitz, John D. and Ellis, Gaylord O.: Two-Dimensional Compressible Flow in Centrifugal Compressors with Straight Blades. Rept. 954, 1950.

Hamrick, Joseph T.; Ginsburg, Ambrose; and Osborn, Walter M.: Method of Analysis for Compressible Flow through Mixed-Flow Centrifugal Impellers of Arbitrary Design. TN 2165, August 1950.

Ellis, Gaylord O. and Stanitz, John D.: Two-Dimensional Compressible Flow in Centrifugal Compressors with Logarithmic-Spiral Blades. TN 2255, January 1951.

POSITIVE DISPLACEMENT
(3.6.1.4)

Sather, Bernard I. and Tauschek, Max J.: Study of Compressor Systems for a Gas-Generator Engine. RM E50H08, October 1950.

STRESS AND VIBRATION
(3.6.2)

Millenson, M. B. and Manson, S. S.: Determination of Stresses in Gas-Turbine Disks Subjected to Plastic Flow and Creep. Rept. 906, 1948.

Simpkinson, Scott H.; Eatherton, Laurel J.; and Millenson, M. B.: Effect of Centrifugal Force on the Elastic Curve of a Vibrating Cantilever Beam. Rept. 914, 1948.

Manson, S. S.: Direct Method of Design and Stress Analysis of Rotating Disks with Temperature Gradient. Rept. 952, 1950.

Gendler, Sel and Johnson, Donald F.: Determination of Minimum Moments of Inertia of Arbitrarily Shaped Areas, such as Hollow Turbine Blades. RM E9H10, February 1950.

Hanson, Morgan P.: Effect of Blade-Root Fit and Lubrication on Vibration Characteristics of Ball-Root-Type Axial-Flow-Compressor Blades. RM E50C17, June 1950.

Mendelson, Alexander and Gendler, Selwyn: Analytical Determination of Coupled Bending-Torsion Vibrations of Cantilever Beams by Means of Station Functions. TN 2185, September 1950.

Wu, M. H. Lee: Analysis of Plane-Stress Problems with Axial Symmetry in Strain-Hardening Range. TN 2217, December 1950.

Mendelson, Alexander and Gendler, Selwyn: Analytical and Experimental Investigation of Effect of Twist on Vibrations of Cantilever Beams. TN 2300, March 1951.

Stress and Vibration (Cont.)

Wu, M. H. Lee: General Plastic Behavior and Approximate Solutions of Rotating Disk in Strain-Hardening Range. TN 2367, May 1951.

MATCHING
(3.6.3)

Sinnette, John T., Jr. and Voss, William J.: Extension of Useful Operating Range of Axial-Flow Compressor by Use of Adjustable Stator Blades. Rept. 915, 1948.

Goldstein, Arthur W.; Alpert, Sumner; Beede, William; and Kovach, Karl: Analysis of the Performance of a Jet Engine from Characteristics of the Components. II - Interaction of the Components as Determined from Engine Operation. Rept. 928, 1948.

Ginsburg, Ambrose; Creagh, John W. R.; and Ritter, William K.: Performance Investigation of a Large Centrifugal Compressor from an Experimental Turbojet Engine. RM E8H13, October 1948.

Sather, Bernard I. and Tauschek, Max J.: Study of Compressor Systems for a Gas-Generator Engine. RM E50H08, October 1950.

Sanders, John C. and Chapin, Edward C.: Equilibrium Operating Performance of Axial-Flow Turbojet Engines by Means of Idealized Analysis. Rept. 987, 1950.

Hensley, Reece V.; Rom, Frank E.; and Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. I - Analytical Method of Performance Evaluation with Compressor-Outlet Air Bleed. TN 2053, March 1950.

Koutz, Stanley L.; Hensley, Reece V.; and Rom, Frank E.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. III - Analytical Determination of Effects of Shaft-Power Extraction. TN 2202, October 1950.

Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. IV - Analytical Determination of Effects of Hot-Gas Bleed. TN 2304, March 1951.

Turbines

(3.7)

Lundin, Bruce T.: Theoretical Analysis of Various Thrust-Augmentation Cycles for Turbojet Engines. Rept. 981, 1950.

FLOW THEORY AND

EXPERIMENT

(3.7.1)

Goldstein, Arthur W.: Analysis of the Performance of a Jet Engine from Characteristics of the Components. I - Aerodynamic and Matching Characteristics of the Turbine Component Determined with Cold Air. Rept. 878, 1947.

Hauser, Cavour H.; Plohr, Henry W.; and Sonder, Gerhard: Study of Flow Conditions and Deflection Angle at Exit of Two-Dimensional Cascade of Turbine Rotor Blades at Critical and Supercritical Pressure Ratios. RM E9K25, March 1950.

Spooner, Robert B.: Effect of Heat-Capacity Lag on a Variety of Turbine-Nozzle Flow Processes. TN 2193, October 1950.

Wu, Chung-Hua: Formulas and Tables of Coefficients for Numerical Differentiation with Function Values Given at Unequally Spaced Points and Application to Solution of Partial Differential Equations. TN 2214, November 1950.

Wu, Chung-Hua: General Through-Flow Theory of Fluid Flow with Subsonic or Supersonic Velocity in Turbomachines of Arbitrary Hub and Casing Shapes. TN 2302, March 1951.

Mager, Artur: Generalization of Boundary-Layer Momentum-Integral Equations to Three-Dimensional Flows Including those of Rotating System. TN 2310, March 1951.

AXIAL FLOW

(3.7.1.1)

Goldstein, Arthur W.: Analysis of the Performance of a Jet Engine from Characteristics of the Components. I - Aerodynamic and Matching Characteristics of the Turbine Component Determined with Cold Air. Rept. 878, 1947.

Spurr, Robert A. and Allen, H. Julian: A Theory of Unstaggered Airfoil Cascades in Compressible Flow. Rept. 888, 1947.

Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.

Goldstein, Arthur W. and Mager, Artur: Attainable Circulation of Airfoils in Cascade. Rept. 953, 1950.

Wu, Chung-Hua and Wolfenstein, Lincoln: Application of Radial-Equilibrium Condition to Axial-Flow Compressor and Turbine Design. Rept. 955, 1950.

Hauser, Cavour H.; Plohr, Henry W.; and Sonder, Gerhard: Study of Flow Conditions and Deflection Angle at Exit of Two-Dimensional Cascade of Turbine Rotor Blades at Critical and Supercritical Pressure Ratios. RM E9K25, March 1950.

Freche, John C.: Further Investigation of a Gas Turbine with National Bureau of Standards Body 4811C Ceramic Rotor Blades. RM E9L07, March 1950.

Axial Flow Theory and Experiment (Cont.)

- Finger, Harold B.: Method of Experimentally Determining Radial Distributions of Velocity through Axial-Flow Compressor. TN 2059, April 1950.
- Hansen, Arthur G. and Yohner, Peggy L.: A Numerical Procedure for Designing Cascade Blades with Prescribed Velocity Distribution in Incompressible Flow. TN 2101, June 1950.
- Englert, G. W. and Ross, A. O.: Investigation of First Stage of Two-Stage Turbine Designed for Free-Vortex Flow. TN 2107, June 1950.
- Wu, Chung-Hua: Survey of Available Information on Internal Flow Losses through Axial Turbomachines. RM E50J13, January 1951.
- Slivka, William R. and Silvern, David H.: Analytical Evaluation of Aerodynamic Characteristics of Turbines with Nontwisted Rotor Blades. TN 2365, May 1951.
- Sinnette, John T., Jr. and Costello, George R.: Possible Application of Blade Boundary-Layer Control to Improvement of Design and Off-Design Performance of Axial-Flow Turbomachines. TN 2371, May 1951.

RADIAL FLOW
(3.7.1.2)

- Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.
- Stanitz, John D.: Two-Dimensional Compressible Flow in Turbomachines with Conical Flow Surfaces. Rept. 935, 1949.
- Stanitz, John D. and Ellis, Gaylord O.: Two-Dimensional Compressible Flow in Centrifugal Compressors with Straight Blades. Rept. 954, 1950.
- Rebeske, John J., Jr.; Parisen, Richard B.; and Schum, Harold J.: Investigation of Centrifugal Compressor Operated as a Centripetal Refrigeration Turbine. RM E50I20, December 1950.

MIXED FLOW
(3.7.1.3)

- Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.
- Stanitz, John D.: Two-Dimensional Compressible Flow in Turbomachines with Conical Flow Surfaces. Rept. 935, 1949.
- Stanitz, John D. and Ellis, Gaylord O.: Two-Dimensional Compressible Flow in Centrifugal Compressors with Straight Blades. Rept. 954, 1950.

COOLING
(3.7.2)

- Livingood, John N. B. and Brown, W. Byron: Analysis of Spanwise Temperature Distribution in Three Types of Air-Cooled Turbine Blades. Rept. 994, 1950.
- Kohlmann, H.: The Development of a Hollow Blade for Exhaust Gas Turbines. TM 1289, December 1950.
- Livingood, John N. B. and Brown, W. Byron: Analysis of Temperature Distribution in Liquid-Cooled Turbine Blades. TN 2321, April 1951.
- Leist, K. and Knörschild, E.: Exhaust Turbine and Jet Propulsion Systems. Parts I and II. TM 1294, April 1951.
- Slivka, William R. and Silvern, David H.: Analytical Evaluation of Aerodynamic Characteristics of Turbines with Nontwisted Rotor Blades. TN 2365, May 1951.

STRESS AND VIBRATION
(3.7.3)

- Millenson, M. B. and Manson, S. S.: Determination of Stresses in Gas-Turbine Disks Subjected to Plastic Flow and Creep. Rept. 906, 1948.
- Simpkinson, Scott H.; Eatherton, Laurel J.; and Millenson, M. B.: Effect of Centrifugal Force on the Elastic Curve of a Vibrating Cantilever Beam. Rept. 914, 1948.

Stress and Vibration (Cont.)

Farmer, J. Elmo; Deutsch, George C.; and Sikora, Paul F.: Cyclic Engine Test of Cast Vitallium Turbine Buckets - II. RM E7J24, January 1948.

Farmer, J. Elmo; Darmara, F. N.; and Poulson, Francis D.: Cyclic Engine Test of Cast Vitallium Turbine Buckets - I. RM E7J23, February 1948.

Wilterdink, P. I.: Experimental Investigation of Rim Cracking in Disks Subjected to High Temperature Gradients. RM E9F16, September 1949.

Manson, S. S.: Direct Method of Design and Stress Analysis of Rotating Disks with Temperature Gradient. Rept. 952, 1950.

Gendler, Sel and Johnson, Donald F.: Determination of Minimum Moments of Inertia of Arbitrarily Shaped Areas, such as Hollow Turbine Blades. RM E9H10, February 1950.

Garrett, Floyd B. and Yaker, Charles: Turbojet-Engine Evaluation of AISI 321 and AISI 347 Stainless Steels as Nozzle-Blade Materials. RM E9K17, February 1950.

Hoffman, Charles A. and Yaker, Charles: Effects of an Aging Treatment on Life of Small Cast Vitallium Gas-Turbine Blades. TN 2052, March 1950.

Mendelson, Alexander and Gendler, Selwyn: Analytical Determination of Coupled Bending-Torsion Vibrations of Cantilever Beams by Means of Station Functions. TN 2185, September 1950.

Wu, M. H. Lee: Analysis of Plane-Stress Problems with Axial Symmetry in Strain-Hardening Range. TN 2217, December 1950.

Kohlmann, H.: The Development of a Hollow Blade for Exhaust Gas Turbines. TM 1289, December 1950.

Mendelson, Alexander and Gendler, Selwyn: Analytical and Experimental Investigation of Effect of Twist on Vibrations of Cantilever Beams. TN 2300, March 1951.

Yaker, C. and Hoffman, C. A.: Effects of Some Solution Treatments Followed by an Aging Treatment on the Life of Small Cast Gas-Turbine Blades of a Cobalt-Chromium-Base Alloy - Part I, Effect of Solution-Treating Temperature. TN 2320, March 1951.

Wu, M. H. Lee: General Plastic Behavior and Approximate Solutions of Rotating Disk in Strain-Hardening Range. TN 2367, May 1951.

MATCHING

(3.7.4)

Goldstein, Arthur W.: Analysis of the Performance of a Jet Engine from Characteristics of the Components. I - Aerodynamic and Matching Characteristics of the Turbine Component Determined with Cold Air. Rept. 878, 1947.

Goldstein, Arthur W.; Alpert, Sumner; Beede, William; and Kovach, Karl: Analysis of the Performance of a Jet Engine from Characteristics of the Components. II - Interaction of the Components as Determined from Engine Operation. Rept. 928, 1948.

Kochendorfer, Fred D. and Nettles, J. Cary: An Analytical Method of Estimating Turbine Performance. Rept. 930, 1949.

Heidmann, Marcus F.: Method of Determining Conditions of Maximum Efficiency of an Independent Turbine-Propeller Combination. TN 1951, September 1949.

Sanders, John C. and Chapin, Edward C.: Equilibrium Operating Performance of Axial-Flow Turbojet Engines by Means of Idealized Analysis. Rept. 987, 1950.

Matching (Cont.)

Hensley, Reece V.; Rom, Frank E.;
and Koutz, Stanley L.: Effect of
Heat and Power Extraction on
Turbojet-Engine Performance.
I - Analytical Method of Per-
formance Evaluation with
Compressor-Outlet Air Bleed.
TN 2053, March 1950.

Koutz, Stanley L.; Hensley, Reece V.;
and Rom, Frank E.: Effect of
Heat and Power Extraction on
Turbojet-Engine Performance.
III - Analytical Determination of
Effects of Shaft-Power Extraction.
TN 2202, October 1950.

Koutz, Stanley L.: Effect of Heat and
Power Extraction on Turbojet-
Engine Performance. IV -
Analytical Determination of Effects
of Hot-Gas Bleed. TN 2304,
March 1951.

Friction and Lubrication

(3.8)

Buske, A. and Rolli, W.: Measurement of Oil-Film Pressures in Journal Bearings under Constant and Variable Loads. TM 1200, November 1949.

Burwell, J. T. and Strang, C. D.: Further Study of Metal Transfer between Sliding Surfaces. TN 2271, January 1951.

THEORY AND EXPERIMENT

(3.8.1)

Buske, A. and Rolli, W.: Measurement of Oil-Film Pressures in Journal Bearings under Constant and Variable Loads. TM 1200, November 1949.

Godfrey, Douglas: Investigation of Fretting Corrosion by Microscopic Observation. TN 2039, February 1950.

Johnson, Robert L.; Godfrey, Douglas; and Bisson, Edmond E.: Friction of Surface Films Formed by Decomposition of Common Lubricants of Several Types. TN 2076, April 1950.

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. I - Initial Studies. TN 2128, July 1950.

Godfrey, Douglas and Bisson, Edmond E.: Effectiveness of Molybdenum Disulfide as a Fretting-Corrosion Inhibitor. TN 2180, September 1950.

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. II - Lubrication Studies - Effect of Oil-Inlet Location, Angle, and Velocity. TN 2216, November 1950.

HYDRODYNAMIC THEORY

(3.8.1.1)

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. I - Initial Studies. TN 2128, July 1950.

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. II - Lubrication Studies - Effect of Oil-Inlet Location, Angle, and Velocity. TN 2216, November 1950.

CHEMISTRY OF LUBRICATION

(3.8.1.2)

Ross, Sydney: Variation with Temperature of Surface Tension of Lubricating Oils. TN 2030, February 1950.

Woods, W. W. and Robinson, J. V.: Comparative Foaming Characteristics of Aeronautical Lubricating Oils. TN 2031, February 1950.

Robinson, J. V. and Woods, W. W.: Foaming of Mixtures of Pure Hydrocarbons. TN 2032, February 1950.

Robinson, J. V.: Rise of Air Bubbles in Aircraft Lubricating Oils. TN 2033, February 1950.

Bisson, Edmond E.; Swikert, Max A.; and Johnson, Robert L.: Effect of Chemical Reactivity of Lubricant Additives on Friction and Surface Welding at High Sliding Velocities. TN 2144, August 1950.

Johnson, Robert L.; Peterson, Marshall B.; and Swikert, Max A.: Friction at High Sliding Velocities of Oxide Films on Steel Surfaces Boundary Lubricated with Stearic-Acid Solutions. TN 2366, May 1951.

SURFACE CONDITIONS
(3.8.1.3)

Johnson, Robert L.; Swikert, Max A.; and Bisson, Edmond E.: Friction and Wear of Hot-Pressed Bearing Materials Containing Molybdenum Disulfide. TN 2027, February 1950.

Godfrey, Douglas: Investigation of Fretting Corrosion by Microscopic Observation. TN 2039, February 1950.

Johnson, Robert L.; Godfrey, Douglas; and Bisson, Edmond E.: Friction of Surface Films Formed by Decomposition of Common Lubricants of Several Types. TN 2076, April 1950.

Bisson, Edmond E.; Swikert, Max A.; and Johnson, Robert L.: Effect of Chemical Reactivity of Lubricant Additives on Friction and Surface Welding at High Sliding Velocities. TN 2144, August 1950.

Godfrey, Douglas and Bisson, Edmond E.: Effectiveness of Molybdenum Disulfide as a Fretting-Corrosion Inhibitor. TN 2180, September 1950.

Johnson, Robert L.; Peterson, Marshall B.; and Swikert, Max A.: Friction at High Sliding Velocities of Oxide Films on Steel Surfaces Boundary Lubricated with Stearic-Acid Solutions. TN 2366, May 1951.

SLIDING CONTACT SURFACES
(3.8.2)

Buske, A. and Rolli, W.: Measurement of Oil-Film Pressures in Journal Bearings under Constant and Variable Loads. TM 1200, November 1949.

Johnson, Robert L.; Swikert, Max A.; and Bisson, Edmond E.: Friction and Wear of Hot-Pressed Bearing Materials Containing Molybdenum Disulfide. TN 2027, February 1950.

Godfrey, Douglas: Investigation of Fretting Corrosion by Microscopic Observation. TN 2039, February 1950.

Johnson, Robert L.; Godfrey, Douglas; and Bisson, Edmond E.: Friction of Surface Films Formed by Decomposition of Common Lubricants of Several Types. TN 2076, April 1950.

Hanson, Morgan P.: Effect of Blade-Root Fit and Lubrication on Vibration Characteristics of Ball-Root-Type Axial-Flow-Compressor Blades. RM E50C17, June 1950.

Godfrey, Douglas and Bisson, Edmond E.: Effectiveness of Molybdenum Disulfide as a Fretting-Corrosion Inhibitor. TN 2180, September 1950.

Burwell, J. T. and Strang, C. D.: Further Study of Metal Transfer between Sliding Surfaces. TN 2271, January 1951.

ROLLING CONTACT SURFACES
(3.8.3)

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. I - Initial Studies. TN 2128, July 1950.

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. II - Lubrication Studies - Effect of Oil-Inlet Location, Angle, and Velocity. TN 2216, November 1950.

ANTI-FRICTION BEARINGS
(3.8.3.1)

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. I - Initial Studies. TN 2128, July 1950.

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. II - Lubrication Studies - Effect of Oil-Inlet Location, Angle, and Velocity. TN 2216, November 1950.

SLIDING AND ROLLING CONTACT SURFACES

(3.8.4)

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. I - Initial Studies. TN 2128, July 1950.

Macks, E. Fred and Nemeth, Zolton N.: Investigation of 75-Millimeter-Bore Cylindrical Roller Bearings at High Speeds. II - Lubrication Studies - Effect of Oil-Inlet Location, Angle, and Velocity. TN 2216, November 1950.

LUBRICANTS

(3.8.5)

Johnson, Robert L.; Swikert, Max A.; and Bisson, Edmond E.: Friction and Wear of Hot-Pressed Bearing Materials Containing Molybdenum Disulfide. TN 2027, February 1950.

Ross, Sydney: Variation with Temperature of Surface Tension of Lubricating Oils. TN 2030, February 1950.

Woods, W. W. and Robinson, J. V.: Comparative Foaming Characteristics of Aeronautical Lubricating Oils. TN 2031, February 1950.

Robinson, J. V. and Woods, W. W.: Foaming of Mixtures of Pure Hydrocarbons. TN 2032, February 1950.

Robinson, J. V.: Rise of Air Bubbles in Aircraft Lubricating Oils. TN 2033, February 1950.

Hanson, Morgan P.: Effect of Blade-Root Fit and Lubrication on Vibration Characteristics of Ball-Root-Type Axial-Flow-Compressor Blades. RM E50C17, June 1950.

Bisson, Edmond E.; Swikert, Max A.; and Johnson, Robert L.: Effect of Chemical Reactivity of Lubricant Additives on Friction and Surface Welding at High Sliding Velocities. TN 2144, August 1950.

Godfrey, Douglas and Bisson, Edmond E.: Effectiveness of Molybdenum Disulfide as a Fretting-Corrosion Inhibitor. TN 2180, September 1950.

Johnson, Robert L.; Peterson, Marshall B.; and Swikert, Max A.: Friction at High Sliding Velocities of Oxide Films on Steel Surfaces Boundary Lubricated with Stearic-Acid Solutions. TN 2366, May 1951.

Heat Transfer

(3.9)

Lowell, Herman H.: Design and Applications of Hot-Wire Anemometers for Steady-State Measurements at Transonic and Supersonic Airspeeds. TN 2117, July 1950.

Eckert, E. R. G. and Low, George M.: Temperature Distribution in Internally Heated Walls of Heat Exchangers Composed of Noncircular Flow Passages. TN 2257, January 1951.

THEORY AND EXPERIMENT

(3.9.1)

Lundin, Bruce T.; Povolny, John H.; and Chelko, Louis J.: Correlation of Cylinder-Head Temperatures and Coolant Heat Rejections of a Multicylinder, Liquid-Cooled Engine of 1710-Cubic-Inch Displacement. Rept. 931, 1949.

Livingood, John N. B. and Brown, W. Byron: Analysis of Spanwise Temperature Distribution in Three Types of Air-Cooled Turbine Blades. Rept. 994, 1950.

Boelter, L. M. K.; Leasure, R.; Romie, F. E.; Sanders, V. D.; Elswick, W. R.; and Young, G.: An Investigation of Aircraft Heaters. XXXIII - Experimental Determination of Thermal and Hydrodynamical Behavior of Air Flowing along Finned Plates. TN 2072, March 1950.

Povolny, John H.; Bogdan, Louis J.; and Chelko, Louis J.: Cylinder-Head Temperatures and Coolant Heat Rejection of a Multicylinder Liquid-Cooled Engine of 1650-Cubic-Inch Displacement. TN 2069, April 1950.

Lutz, Otto: Graphical Determination of Wall Temperatures for Heat Transfers through Walls of Arbitrary Shape. TM 1280, April 1950.

Gray, Vernon H.: Improvements in Heat Transfer for Anti-Icing of Gas-Heated Airfoils with Internal Fins and Partitions. TN 2126, July 1950.

Lowdermilk, Warren H. and Grele, Milton D.: Influence of Tube-Entrance Configuration on Average Heat-Transfer Coefficients and Friction Factors for Air Flowing in an Inconel Tube. RM E50E23, August 1950.

Kaufman, Samuel J. and Isely, Francis D.: Preliminary Investigation of Heat Transfer to Water Flowing in an Electrically Heated Inconel Tube. RM E50G31, September 1950.

Eckert, E. R. G. and Jackson, Thomas W.: Analysis of Turbulent Free-Convection Boundary-Layer on Flat Plate. TN 2207, October 1950.

Desmon, Leland G. and Sams, Eldon W.: Correlation of Forced-Convection Heat-Transfer Data for Air Flowing in Smooth Platinum Tube with Long-Approach Entrance at High Surface and Inlet-Air Temperatures. RM E50H23, November 1950.

Manson, S. V.: Correlations of Heat-Transfer Data and of Friction Data for Interrupted Plane Fins Staggered in Successive Rows. TN 2237, December 1950.

Kohlmann, H.: The Development of a Hollow Blade for Exhaust Gas Turbines. TM 1289, December 1950.

Sänger, E.; Goercke, P.; and Bredt, I.: On Ionization and Luminescence in Flames. TM 1305, April 1951.

CASCADES
(3.9.1.1)

Kohlmann, H.: The Development of a Hollow Blade for Exhaust Gas Turbines. TM 1289, December 1950.

HEAT EXCHANGERS
(3.9.2)

Boelter, L. M. K.; Leasure, R.; Romie, F. E.; Sanders, V. D.; Elswick, W. R.; and Young, G.: An Investigation of Aircraft Heaters. XXXIII - Experimental Determination of Thermal and Hydrodynamical Behavior of Air Flowing along Finned Plates. TN 2072, March 1950.

Pinkel, Benjamin; Noyes, Robert N.; and Valerino, Michael F.: Method for Determining Pressure Drop of Air Flowing through Constant-Area Passages for Arbitrary Heat-Input Distributions. TN 2186, September 1950.

Eckert, E. R. G. and Low, George M.: Temperature Distribution in Internally Heated Walls of Heat Exchangers Composed of Non-circular Flow Passages. TN 2257, January 1951.

Valerino, M. F. and Doyle, R. B.: Method for Determining Pressure Drop of Monatomic Gases Flowing in Turbulent Motion through Constant-Area Passages with Simultaneous Friction and Heat Addition. TN 2328, April 1951.

REGENERATORS
(3.9.2.4)

Manson, S. V.: Regenerator-Design Study and Its Application to Turbine-Propeller Engines. TN 2254, January 1951.

Cooling of Engines

(3.10)

RECIPROCATING ENGINES

(3.10.1)

Acker, Loren W. and Kleinknecht, Kenneth S.: Flight Comparison of Performance and Cooling Characteristics of Exhaust-Ejector Installation with Exhaust-Collector-Ring Installation. RM E6L13a, February 1947.

Sanders, J. C. and Schramm, W. B.: Analysis of Variation of Piston Temperature with Piston Dimensions and Undercrown Cooling. Rept. 895, 1948.

Lutz, Otto: Graphical Determination of Wall Temperatures for Heat Transfers through Walls of Arbitrary Shape. TM 1280, April 1950.

LIQUID COOLED

(3.10.1.1)

Lundin, Bruce T.; Povolny, John H.; and Chelko, Louis J.: Correlation of Cylinder-Head Temperatures and Coolant Heat Rejections of a Multicylinder, Liquid-Cooled Engine of 1710-Cubic-Inch Displacement. Rept. 931, 1949.

Povolny, John H.; Bogdan, Louis J.; and Chelko, Louis J.: Cylinder-Head Temperatures and Coolant Heat Rejection of a Multicylinder Liquid-Cooled Engine of 1650-Cubic-Inch Displacement. TN 2069, April 1950.

GAS TURBINE SYSTEMS

(3.10.2)

Sibulkin, Merwin and Koffel, William K.: Chart for Simplifying Calculation of Pressure Drop of a High-Speed Compressible Fluid under Simultaneous Action of Friction and Heat Transfer - Application to Combustion-Chamber Cooling Passages. TN 2067, March 1950.

Lutz, Otto: Graphical Determination of Wall Temperatures for Heat Transfers through Walls of Arbitrary Shape. TM 1280, April 1950.

Eckert, E. R. G. and Jackson, Thomas W.: Analysis of Turbulent Free-Convection Boundary Layer on Flat Plate. TN 2207, October 1950.

Kohlmann, H.: The Development of a Hollow Blade for Exhaust Gas Turbines. TM 1289, December 1950.

RAM JETS

(3.10.3)

Sibulkin, Merwin and Koffel, William K.: Chart for Simplifying Calculation of Pressure Drop of a High-Speed Compressible Fluid under Simultaneous Action of Friction and Heat Transfer - Application to Combustion-Chamber Cooling Passages. TN 2067, March 1950.

Properties of Gases

(3.11)

Turner, L. Richard and Bogart, Donald:
Constant-Pressure Combustion
Charts Including Effects of Diluent
Addition. Rept. 937, 1949.

Spooner, Robert B.: Effect of Heat-
Capacity Lag on a Variety of
Turbine-Nozzle Flow Processes.
TN 2193, October 1950.

Ovsiannikov, L. V.: Gas Flow with
Straight Transition Line. TM
1295, May 1951.

KINETIC

(3.11.1)

Damköhler, Gerhard: Isentropic Phase
Changes in Dissociating Gases and
the Method of Sound Dispersion for
the Investigation of Homogeneous
Gas Reactions with Very High Speed.
TM 1268, September 1950.

Damköhler, Gerhard: Isentropic Phase
Changes in Dissociating Gases and
the Method of Sound Dispersion for
the Investigation of Homogeneous
Gas Reactions with Very High Speed.
TM 1269, September 1950.

Sänger, E.; Goercke, P.; and Bredt, I.:
On Ionization and Luminescence in
Flames. TM 1305, April 1951.

THERMODYNAMIC

(3.11.2)

English, Robert E. and Wachtl,
William W.: Charts of Thermody-
namic Properties of Air and
Combustion Products from 300°
to 3500° R. TN 2071, April 1950.

Trout, Arthur M.: Theoretical Turbojet
Thrust Augmentation by Evaporation
of Water during Compression as
Determined by Use of a Mollier
Diagram. TN 2104, June 1950.

Huff, Vearl N. and Morrell, Virginia E.:
General Method for Computation of
Equilibrium Composition and
Temperature of Chemical Reactions.
TN 2113, June 1950.

Huff, Vearl N. and Gordon, Sanford:
Tables of Thermodynamic Functions
for Analysis of Aircraft-Propulsion
Systems. TN 2161, August 1950.

Damköhler, Gerhard: Isentropic Phase
Changes in Dissociating Gases and
the Method of Sound Dispersion for
the Investigation of Homogenous Gas
Reactions with Very High Speed.
TM 1269, September 1950.

Sänger, E.; Goercke, P.; and Bredt, I.:
On Ionization and Luminescence in
Flames. TM 1305, April 1951.

Henry, John R. and Bennett, J. Buel:
Method for Calculation of Ram-Jet
Performance. TN 2357, June 1951.

Accessories and Accessory Functions (3.12)

FUEL SYSTEMS

(3.12.1)

TURBOJET ENGINES (3.12.1.4)

Shames, Harold; Himmel, Seymour C.;
and Blivas, Darnold: Frequency
Response of Positive-Displacement
Variable-Stroke Fuel Pump. TN
2109, June 1950.

TURBINE-PROPELLER ENGINES (3.12.1.5)

Shames, Harold; Himmel, Seymour C.;
and Blivas, Darnold: Frequency
Response of Positive-Displacement
Variable-Stroke Fuel Pump. TN
2109, June 1950.

ROCKET ENGINES (3.12.1.8)

Heidmann, Marcus F. and Humphrey,
Jack C.: Fluctuations in a Spray
Formed by Two Impinging Jets.
TN 2349, April 1951.

LUBRICATION SYSTEMS

(3.12.4)

Ross, Sydney: Variation with Tempera-
ture of Surface Tension of Lubricat-
ing Oils. TN 2030, February 1950.

Woods, W. W. and Robinson, J. V.:
Comparative Foaming Character-
istics of Aeronautical Lubricating
Oils. TN 2031, February 1950.

Robinson, J. V. and Woods, W. W.:
Foaming of Mixtures of Pure
Hydrocarbons. TN 2032, Feb-
ruary 1950.

Robinson, J. V.: Rise of Air Bubbles
in Aircraft Lubricating Oils. TN
2033, February 1950.

AIRCRAFT LOADS AND CONSTRUCTION

(4)

Loads (4.1)

Stowell, Elbridge Z.: A Unified Theory of Plastic Buckling of Columns and Plates. Rept. 898, 1948.

AERODYNAMIC

(4.1.1)

Jones, Ira P., Jr. and Klinar, Walter J.: Spin-Tunnel Investigation to Determine the Effect on Spin Recoveries of Reducing the Opening Shock Load of Spin-Recovery Parachutes. TN 2051, March 1950.

Jack, John R.: Theoretical Wave Drags and Pressure Distributions for Axially Symmetric Open-Nose Bodies. TN 2115, June 1950.

WINGS (4.1.1.1)

Weil, Joseph and Sleeman, William G., Jr.: Prediction of the Effects of Propeller Operation on the Static Longitudinal Stability of Single-Engine Tractor Monoplanes with Flaps Retracted. Rept. 941, 1949.

Diederich, Franklin W. and Zlotnick, Martin: Theoretical Spanwise Lift Distributions of Low-Aspect-Ratio Wings at Speeds below and above the Speed of Sound. TN 1973, October 1949.

Aiken, William S., Jr. and Howard, Donald A.: A Comparison of Wing Loads Measured in Flight on a Fighter-Type Airplane by Strain-Gage and Pressure-Distribution Methods. TN 1967, November 1949.

Lomax, Harvard and Heaslet, Max. A.: Linearized Lifting-Surface Theory for Swept-Back Wings with Slender Plan Forms. TN 1992, December 1949.

Heaslet, Max. A., Lomax, Harvard; and Spreiter, John R.: Linearized Compressible-Flow Theory for Sonic Flight Speeds. Rept. 956, 1950.

Heaslet, Max. A. and Lomax, Harvard: The Application of Green's Theorem to the Solution of Boundary-Value Problems in Linearized Supersonic Wing Theory. Rept. 961, 1950.

Merten, Kenneth F.; Rodríguez, José L.; and Beck, Edgar B.: A Comparison of Theoretical and Experimental Wing Bending Moments during Seaplane Landings. TN 2063, April 1950.

Diederich, Franklin W.: Approximate Aerodynamic Influence Coefficients for Wings of Arbitrary Plan Form in Subsonic Flow. TN 2092, July 1950.

DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2140, July 1950.

Haefeli, Rudolph C.; Mirels, Harold; and Cummings, John L.: Charts for Estimating Downwash behind Rectangular, Trapezoidal, and Triangular Wings at Supersonic Speeds. TN 2141, August 1950.

Mirels, Harold: Lift-Cancellation Technique in Linearized Supersonic Wing Theory. TN 2145, August 1950.

DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. TN 2278, January 1951.

Sivells, James C.: An Improved Approximate Method for Calculating Lift Distributions Due to Twist. TN 2282, January 1951.

Wings - Aerodynamic (Cont.)

Hopkins, Edward J.: Lift, Pitching Moment, and Span Load Characteristics of Wings at Low Speed as Affected by Variations of Sweep and Aspect Ratio. TN 2284, January 1951.

Skoog, Richard B. and Brown, Harvey H.: A Method for the Determination of the Spanwise Load Distribution of a Flexible Swept Wing at Subsonic Speeds. TN 2222, March 1951.

Steady Loads
(4.1.1.1.1)

Heaslet, Max. A.; Lomax, Harvard; and Jones, Arthur L.: Volterra's Solution of the Wave Equation as Applied to Three-Dimensional Supersonic Airfoil Problems. Rept. 889, 1947.

DeYoung, John and Harper, Charles W.: Theoretical Symmetric Span Loading at Subsonic Speeds for Wings Having Arbitrary Plan Form. Rept. 921, 1948.

Hanson, Frederick H., Jr. and Dannenberg, Robert E.: Effect of a Nacelle on the Low-Speed Aerodynamic Characteristics of a Swept-Back Wing. RM A8E12, July 1948.

Harmon, Sidney M.: Stability Derivatives of Thin Rectangular Wings at Supersonic Speeds. Wing Diagonals ahead of Tip Mach Lines. Rept. 925, 1949.

Heaslet, Max. A. and Lomax, Harvard: The Calculation of Downwash behind Supersonic Wings with an Application to Triangular Plan Forms. Rept. 957, 1950.

Spreiter, John R.: The Aerodynamic Forces on Slender Plane- and Cruciform-Wing and Body Combinations. Rept. 962, 1950.

Bird, John D.: Some Theoretical Low-Speed Span Loading Characteristics of Swept Wings in Roll and Sideslip. Rept. 969, 1950.

Mirels, Harold and Haefeli, Rudolph C.: Line-Vortex Theory for Calculation of Supersonic Downwash. Rept. 983, 1950.

Jones, Arthur L. and Alksne, Alberta: The Load Distribution Due to Sideslip on Triangular, Trapezoidal, and Related Plan Forms in Supersonic Flow. TN 2007, January 1950.

DeYoung, John: Spanwise Loading for Wings and Control Surfaces of Low Aspect Ratio. TN 2011, January 1950.

Martin, John C.: The Calculation of Downwash behind Wings of Arbitrary Plan Form at Supersonic Speeds. TN 2135, July 1950.

Dannenberg, Robert E.: Measurements of Section Characteristics of a 45° Swept Wing Spanning a Rectangular Low-Speed Wind Tunnel as Affected by the Tunnel Walls. TN 2160, August 1950.

Harmon, Sidney M.: Correspondence Flows for Wings in Linearized Potential Fields at Subsonic and Supersonic Speeds. TN 2303, March 1951.

Harmon, Sidney M.: Method for Calculating Downwash Field Due to Lifting Surfaces at Subsonic and Supersonic Speeds. TN 2344, April 1951.

Maneuvering
(4.1.1.1.2)

Brown, Clinton E. and Adams, Mac C.: Damping in Pitch and Roll of Triangular Wings at Supersonic Speeds. Rept. 892, 1948.

Nissen, James M.; Gadeberg, Burnett L.; and Hamilton, William T.: Correlation of the Drag Characteristics of a P-51B Airplane Obtained from High-Speed Wind Tunnel and Flight Tests. Rept. 916, 1948.

Heaslet, Max. A. and Lomax, Harvard: Two-Dimensional Unsteady Lift Problems in Supersonic Flight. Rept. 945, 1949.

Maneuvering, Wings - Aerodynamic (Cont.)

- Frick, Charles W. and Chubb, Robert S.: The Longitudinal Stability of Elastic Swept Wings at Supersonic Speed. Rept. 965, 1950.
- Moskowitz, Barry and Moeckel, W. E.: First-Order Theory for Unsteady Motion of Thin Wings at Supersonic Speeds. TN 2034, February 1950.
- Harper, Paul W. and Flanigan, Roy E.: The Effect of Rate of Change of Angle of Attack on the Maximum Lift of a Small Model. TN 2061, March 1950.
- Pearson, Henry A.; McGowan, William A.; and Donegan, James J.: Horizontal Tail Loads in Maneuvering Flight. TN 2078, April 1950.
- Matheny, Cloyce E.: Maximum Pitching Angular Accelerations of Airplanes Measured in Flight. TN 2103, May 1950.
- Thornton, James O.: Analysis of V-g Data Obtained from Several Naval Airplanes. RM L9L13, July 1950.
- Lomax, Harvard; Heaslet, Max. A.; and Fuller, Franklyn B.: Three-Dimensional, Unsteady-Lift Problems in High-Speed Flight - Basic Concepts. TN 2256, December 1950.
- Donegan, James J. and Pearson, Henry A.: Matrix Method of Determining the Longitudinal-Stability Coefficients and Frequency Response of an Aircraft from Transient Flight Data. TN 2370, June 1951.
- Gust Loads**
(4.1.1.1.3)
- Heaslet, Max. A. and Lomax, Harvard: Two-Dimensional Unsteady Lift Problems in Supersonic Flight. Rept. 945, 1949.

- Reisert, Thomas D.: Gust-Tunnel Investigation of a Flexible-Wing Model with Semichord Line Swept Back 45°. TN 1959, October 1949.
- Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.
- Moskowitz, Barry and Moeckel, W. E.: First-Order Theory for Unsteady Motion of Thin Wings at Supersonic Speeds. TN 2034, February 1950.
- Mazelsky, Bernard and Diederich, Franklin W.: A Method of Determining the Effect of Airplane Stability on the Gust Load Factor. TN 2035, February 1950.
- Mazelsky, Bernard: Charts of Airplane Acceleration Ratio for Gusts of Arbitrary Shape. TN 2036, February 1950.
- Houbolt, John C.: A Recurrence Matrix Solution for the Dynamic Response of Aircraft in Gusts. TN 2060, March 1950.
- Coleman, Thomas L.: An Analysis of the Normal Accelerations and Airspeeds of Several Lockheed Constellation L-649 Airplanes in Postwar Commercial Transport Operations over the Eastern Part of the United States. RM L9E18a, April 1950.
- Shufflebarger, C. C. and Mickleboro, Harry C.: Flight Investigation of the Effect of Transient Wing Response on Measured Accelerations of a Modern Transport Airplane in Rough Air. TN 2150, August 1950.
- Coleman, Thomas L. and Schumacher, Paul W. J.: An Analysis of the Normal Accelerations and Airspeeds of a Four-Engine Airplane Type in Postwar Commercial Transport Operations on Trans-Pacific and Caribbean - South American Routes. TN 2176, August 1950.

Gust, Wings - Aerodynamic (Cont.)

Steiner, Roy and McDougal, Robert L.: Summary of Normal Accelerations, Gust Velocities, and Operating Practices from April to August 1949 of a Twin-Engine Airplane in Commercial Transport Operations. RM L50B02, August 1950.

Taback, Israel: The NACA Oil-Damped V-G Recorder. TN 2194, October 1950.

Pierce, Harold B.: Gust-Tunnel Investigation of a Wing Model with Semichord Line Swept Back 60°. TN 2204, October 1950.

Richardson, Norman R.: NACA VGH Recorder. TN 2265, February 1951.

Chang, Chieh-Chien: Transient Aerodynamic Behavior of an Airfoil Due to Different Arbitrary Modes of Nonstationary Motions in a Supersonic Flow. TN 2333, April 1951.

TAIL (4.1.1.2)

Kohler, M. and Mautz, W.: Pressure-Distribution Measurements on the Tail Surfaces of a Rotating Model of the Design BFW - M 31. TM 1220, December 1949.

Steady Loads (4.1.1.2.1)

Kohler, M. and Mautz, W.: Pressure-Distribution Measurements on the Tail Surfaces of a Rotating Model of the Design BFW - M 31. TM 1220, December 1949.

Maneuvering (4.1.1.2.2)

Boshar, John: Flight Investigation on a Fighter-Type Airplane of Factors which Affect the Loads and Load Distributions on the Vertical Tail Surfaces during Rudder Kicks and Fishtails. Rept. 885, 1947.

Kohler, M. and Mautz, W.: Pressure-Distribution Measurements on the Tail Surfaces of a Rotating Model of the Design BFW - M 31. TM 1220, December 1949.

Pearson, Henry A.; McGowan, William A.; and Donegan, James J.: Horizontal Tail Loads in Maneuvering Flight. TN 2078, April 1950.

Matheny, Cloyce E.: Maximum Pitching Angular Accelerations of Airplanes Measured in Flight. TN 2103, May 1950.

Donegan, James J. and Pearson, Henry A.: Matrix Method of Determining the Longitudinal-Stability Coefficients and Frequency Response of an Aircraft from Transient Flight Data. TN 2370, June 1951.

Buffeting and Gust (4.1.1.2.3)

Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.

FUSELAGE, NACELLES, AND CANOPIES (4.1.1.3)

Hanson, Frederick H., Jr. and Dannenberg, Robert E.: Effect of a Nacelle on the Low-Speed Aerodynamic Characteristics of a Swept-Back Wing. RM A8E12, July 1948.

Nichols, Mark R. and Keith, Arvid L., Jr.: Investigation of a Systematic Group of NACA 1-Series Cowlings with and without Spinners. Rept. 950, 1949.

Matthews, Clarence W.: A Comparison of the Experimental Subsonic Pressure Distributions about Several Bodies of Revolution with Pressure Distributions Computed by Means of the Linearized Theory. RM L9F28, September 1949.

Fuselage, Nacelles, and Canopies (Cont.)

Spreiter, John R.: The Aerodynamic Forces on Slender Plane- and Cruciform-Wing and Body Combinations. Rept. 962, 1950.

Huston, Wilber B. and Skopinski, T. H.: Flight Investigation of the Pressure Distributions and Loads on a Front and Rear Sliding Canopy. RM L50B03, April 1950.

ROTATING WINGS (4.1.1.4)

Lomax, Harvard and Heaslet, Max. A.: Damping-in-Roll Calculations for Slender Swept-Back Wings and Slender Wing-Body Combinations. TN 1950, September 1949.

Morduchow, M. and Hinchey, F. G.: Theoretical Analysis of Oscillations in Hovering of Helicopter Blades with Inclined and Offset Flapping and Lagging Hinge Axes. TN 2226, December 1950.

De Guillenchmidt, P.: Calculation of the Bending Stresses in Helicopter Rotor Blades. TM 1312, March 1951.

AEROELASTICITY (4.1.1.5)

Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.

Frick, Charles W. and Chubb, Robert S.: The Longitudinal Stability of Elastic Swept Wings at Supersonic Speed. Rept. 965, 1950.

Tucker, Warren A. and Nelson, Robert L.: The Effect of Torsional Flexibility on the Rolling Characteristics at Supersonic Speeds of Tapered Unswept Wings. Rept. 972, 1950.

Diederich, Franklin W.: Approximate Aerodynamic Influence Coefficients for Wings of Arbitrary Plan Form in Subsonic Flow. TN 2092, July 1950.

Shufflebarger, C. C. and Mickleboro, Harry C.: Flight Investigation of the Effect of Transient Wing Response on Measured Accelerations of a Modern Transport Airplane in Rough Air. TN 2150, August 1950.

Skoog, Richard B. and Brown, Harvey H.: A Method for the Determination of the Spanwise Load Distribution of a Flexible Swept Wing at Subsonic Speeds. TN 2222, March 1951.

IMPACT LANDING (4.1.2.1)

McPherson, A. E.; Evans, J., Jr.; and Levy, Samuel: Influence of Wing Flexibility on Force-Time Relation in Shock Strut Following Vertical Landing Impact. TN 1995, November 1949.

Water (4.1.2.1.2)

Milwitzky, Benjamin: A Theoretical Investigation of Hydrodynamic Impact Loads on Scalloped-Bottom Seaplanes and Comparisons with Experiment. Rept. 867, 1947.

Kapryan, Walter J.: Effect of Forebody Warp and Increase in Afterbody Length on the Hydrodynamic Qualities of a Flying-Boat Hull of High Length-Beam Ratio. TN 1980, November 1949.

Batterson, Sidney A. and McArver, A. Ethelda: Water Landing Investigation of a Model Having a Heavy Beam Loading and a 30° Angle of Dead Rise. TN 2015, February 1950.

Merten, Kenneth F.; Rodríguez, José L.; and Beck, Edgar B.: A Comparison of Theoretical and Experimental Wing Bending Moments during Seaplane Landings. TN 2063, April 1950.

Water - Impact Landing (Cont.)

Smiley, Robert F.: A Study of Water Pressure Distributions during Landings with Special Reference to a Prismatic Model Having a Heavy Beam Loading and a 30° Angle of Dead Rise. TN 2111, July 1950.

McArver, A. Ethelda: Water-Landing Investigation of a Model Having Heavy Beam Loadings and 0° Angle of Dead Rise. TN 2330, April 1951.

Miller, Robert W. and Merten, Kenneth F.: Comparison of Theoretical and Experimental Response of a Single-Mode Elastic System in Hydrodynamic Impact. TN 2343, April 1951.

Vibration and Flutter

(4.2)

- Morduchow, Morris: On Internal Damping of Rotating Beams. TN 1996, December 1949.
- Moskowitz, Barry and Moeckel, W. E.: First-Order Theory for Unsteady Motion of Thin Wings at Supersonic Speeds. TN 2034, February 1950.
- Huckel, Vera and Durling, Barbara J.: Tables of Wing-Aileron Coefficients of Oscillating Air Forces for Two-Dimensional Supersonic Flow. TN 2055, March 1950.
- Watkins, Charles E.: Effect of Aspect Ratio on the Air Forces and Moments of Harmonically Oscillating Thin Rectangular Wings in Supersonic Potential Flow. TN 2064, April 1950.
- Haskind, M. D. and Falkovich, S. V.: Vibration of a Wing of Finite Span in a Supersonic Flow. TM 1257, April 1950.
- Mendelson, Alexander and Gendler, Selwyn: Analytical Determination of Coupled Bending-Torsion Vibrations of Cantilever Beams by Means of Station Functions. TN 2185, September 1950.
- Mendelson, Alexander and Gendler, Selwyn: Analytical and Experimental Investigation of Effect of Twist on Vibrations of Cantilever Beams. TN 2300, March 1951.
- Castile, George E. and Herr, Robert W.: Some Effects of Density and Mach Number on the Flutter Speed of Two Uniform Wings. TN 1989, December 1949.
- Runyan, Harry L. and Watkins, Charles E.: Flutter of a Uniform Wing with an Arbitrarily Placed Mass According to a Differential-Equation Analysis and a Comparison with Experiment. Rept. 966, 1950.
- Reissner, Eric: On the Theory of Oscillating Airfoils of Finite Span in Subsonic Compressible Flow. Rept. 1002, 1950.
- Huckel, Vera and Durling, Barbara J.: Tables of Wing-Aileron Coefficients of Oscillating Air Forces for Two-Dimensional Supersonic Flow. TN 2055, March 1950.
- Haskind, M. D. and Falkovich, S. V.: Vibration of a Wing of Finite Span in a Supersonic Flow. TM 1257, April 1950.
- Turner, M. J. and Rabinowitz, S.: Aerodynamic Coefficients for an Oscillating Airfoil with Hinged Flap, with Tables for a Mach Number of 0.7. TN 2213, October 1950.
- Reissner, Eric: Extension of the Theory of Oscillating Airfoils of Finite Span in Subsonic Compressible Flow. TN 2274, February 1951.
- Teichmann, A.: State and Development of Flutter Calculation. TM 1297, March 1951.
- Fearnow, Dwight O.: Investigation of the Structural Damping of a Full-Scale Airplane Wing. RM L51A04, March 1951.

WINGS AND AILERONS

(4.2.1)

- Garrick, I. E. and Rubinow, S. I.: Theoretical Study of Air Forces on an Oscillating or Steady Thin Wing in a Supersonic Main Stream. Rept. 872, 1947.

Wings and Ailerons (Cont.)

- Chang, Chieh-Chien: Transient Aerodynamic Behavior of an Airfoil Due to Different Arbitrary Modes of Non-stationary Motions in a Supersonic Flow. TN 2333, April 1951.
- Gossard, Myron L.: An Iterative Transformation Procedure for Numerical Solution of Flutter and Similar Characteristic-Value Problems. TN 2346, May 1951.
- Reissner, Eric: On the Application of Mathieu Functions in the Theory of Subsonic Compressible Flow past Oscillating Airfoils. TN 2363, May 1951.
- Woolston, Donald S. and Runyan, Harry L.: On the Use of Coupled Modal Functions in Flutter Analysis. TN 2375, June 1951.

BODIES

(4.2.3)

- Runyan, Harry L. and Watkins, Charles E.: Flutter of a Uniform Wing with an Arbitrarily Placed Mass According to a Differential-Equation Analysis and a Comparison with Experiment. Rept. 966, 1950.
- Gossard, Myron L.: An Iterative Transformation Procedure for Numerical Solution of Flutter and Similar Characteristic-Value Problems. TN 2346, May 1951.
- Woolston, Donald S. and Runyan, Harry L.: On the Use of Coupled Modal Functions in Flutter Analysis. TN 2375, June 1951.

PROPELLERS, FANS, AND COMPRESSORS

(4.2.4)

- Simkinson, Scott H.; Eatherton, Laurel J.; and Millenson, Morton B.: Effect of Centrifugal Force on the Elastic Curve of a Vibrating Cantilever Beam. Rept. 914, 1948.

- Baker, John E. and Paulnock, Russell S.: Experimental Investigation of Flutter of a Propeller with Clark Y Section Operating at Zero Forward Velocity at Positive and Negative Blade-Angle Settings. TN 1966, December 1949.

- Roberts, John C. and Yaggy, Paul F.: A Survey of the Flow at the Plane of the Propeller of a Twin-Engine Airplane. TN 2192, September 1950.

- Rogallo, Vernon L.; Roberts, John C.; and Oldaker, Merritt R.: Vibratory Stresses in Propellers Operating in the Flow Field of a Wing-Nacelle-Fuselage Combination. TN 2308, March 1951.

ROTATING WING AIRCRAFT

(4.2.5)

- Simpkinson, Scott H.; Eatherton, Laurel J.; and Millenson, Morton B.: Effect of Centrifugal Force on the Elastic Curve of a Vibrating Cantilever Beam. Rept. 914, 1948.
- Morduchow, Morris: On Internal Damping of Rotating Beams. TN 1996, December 1949.
- Morduchow, M. and Hinchey, F. G.: Theoretical Analysis of Oscillations in Hovering of Helicopter Blades with Inclined and Offset Flapping and Lagging Hinge Axes. TN 2226, December 1950.

Structures

(4.3)

COLUMNS

(4.3.1)

Houbolt, John C. and Stowell, Elbridge Z.: Critical Stress of Plate Columns. TN 2163, August 1950.

Duberg, John E. and Wilder, Thomas W., III: Inelastic Column Behavior. TN 2267, January 1951.

Heimerl, George J. and Barrett, Paul F.: A Structural-Efficiency Evaluation of Titanium at Normal and Elevated Temperatures. TN 2269, January 1951.

BEAMS

(4.3.1.2)

Morduchow, Morris: On Internal Damping of Rotating Beams. TN 1996, December 1949.

Hoff, N. J.: Bending and Buckling of Rectangular Sandwich Plates. TN 2225, November 1950.

SECTIONS

(4.3.1.3)

Goodman, Stanley: Elastic Buckling of Outstanding Flanges Clamped at One Edge and Reinforced by Bulbs at Other Edge. TN 1985, October 1949.

PLATES

(4.3.3)

Hoff, N. J.: Bending and Buckling of Rectangular Sandwich Plates. TN 2225, November 1950.

Heimerl, George J. and Barrett, Paul F.: A Structural-Efficiency Evaluation of Titanium at Normal and Elevated Temperatures. TN 2269, January 1951.

Libove, Charles and Hubka, Ralph E.: Elastic Constants for Corrugated-Core Sandwich Plates. TN 2289, February 1951.

Vlasov, V. S.: Basic Differential Equations in General Theory of Elastic Shells. TM 1241, February 1951.

FLAT

(4.3.3.1)

Stowell, Elbridge Z.: A Unified Theory of Plastic Buckling of Columns and Plates. Rept. 898, 1948.

Stowell, Elbridge Z. and Pride, Richard A.: Plastic Buckling of Extruded Composite Sections in Compression. TN 1971, October 1949.

Heimerl, George J. and Roberts, William M.: Determination of Plate Compressive Strengths at Elevated Temperatures. Rept. 960, 1950.

Stowell, Elbridge Z.: Stress and Strain Concentration at a Circular Hole in an Infinite Plate. TN 2073, April 1950.

Unstiffened

(4.3.3.1.1)

Libove, Charles and Batdorf, S. B.: A General Small-Deflection Theory for Flat Sandwich Plates. Rept. 899, 1948.

Handelman, G. H. and Prager, W.: Plastic Buckling of a Rectangular Plate under Edge Thrusts. Rept. 946, 1949.

Unstiffened - Flat (Cont.)

Buchert, Kenneth P.: Stability of Alclad Plates. TN 1986, December 1949.

Stowell, Elbridge Z.: Plastic Buckling of a Long Flat Plate under Combined Shear and Longitudinal Compression. TN 1990, December 1949.

Stowell, Elbridge Z.: Compressive Strength of Flanges. TN 2020, January 1950.

Houbolt, John C. and Stowell, Elbridge Z.: Critical Stress of Plate Columns. TN 2163, August 1950.

Thielemann, Wilhelm: Contribution to the Problem of Buckling of Orthotropic Plates, with Special Reference to Plywood. TM 1263, August 1950.

Stiffened
(4.3.3.1.2)

Hoff, N. J. and Libby, Paul A.: Recommendations for Numerical Solution of Reinforced-Panel and Fuselage-Ring Problems. Rept. 934, 1949.

Hickman, William A. and Dow, Norris F.: Data on the Compressive Strength of 75S-T6 Aluminum-Alloy Flat Panels having Small, Thin, Widely Spaced, Longitudinal Extruded Z-Section Stiffeners. TN 1978, November 1949.

Seide, Paul and Stowell, Elbridge Z.: Elastic and Plastic Buckling of Simply Supported Metalite Type Sandwich Plates in Compression. Rept. 967, 1950.

Dow, Norris F. and Hickman, William A.: Effect of Variation in Rivet Diameter and Pitch on the Average Stress at Maximum Load for 24S-T3 and 75S-T6 Aluminum-Alloy, Flat, Z-Stiffened Panels that Fail by Local Instability. TN 2139, July 1950.

Seide, Paul and Barrett, Paul F.: The Stability of the Compression Cover of Box Beams Stiffened by Posts. TN 2153, August 1950.

Goodman, Stanley: Lateral Elastic Instability of Hat-Section Stringers under Compressive Load. TN 2272, January 1951.

CURVED
(4.3.3.2)

Unstiffened
(4.3.3.2.1)

Batdorf, S. B.: A Simplified Method of Elastic-Stability Analysis for Thin Cylindrical Shells. II - Modified Equilibrium Equation. Rept. 874, 1947.

Stein, Manuel and Mayers, J.: A Small-Deflection Theory for Curved Sandwich Plates. TN 2017, February 1950.

Stiffened
(4.3.3.2.2)

Stein, Manuel and Yaeger, David J.: Critical Shear Stress of a Curved Rectangular Panel with a Central Stiffener. TN 1972, October 1949.

Stein, Manuel; Sanders, J. Lyell, Jr.; and Crate, Harold: Critical Stress of Ring-Stiffened Cylinders in Torsion. Rept. 989, 1950.

Peterson, James P.: Experimental Investigation of Stiffened Circular Cylinders Subjected to Combined Torsion and Compression. TN 2188, September 1950.

BEAMS

(4.3.4)

Kruszewski, Edwin T. and Houbolt, John C.: The Calculation of Modes and Frequencies of a Modified Structure from Those of the Unmodified Structure. TN 2132, July 1950.

Beams (Cont.)

Williams, Harry A.: An Investigation of Pure Bending in the Plastic Range when Loads Are Not Parallel to a Principal Plane. TN 2287, February 1951.

BOX
(4.3.4.1)

Zender, George W. and Heldenfels, Richard R.: Stress and Distortion Measurements in a 45° Swept Box Beam Subjected to Antisymmetrical Bending and Torsion. TN 2054, April 1950.

Seide, Paul and Barrett, Paul F.: The Stability of the Compression Cover of Box Beams Stiffened by Posts. TN 2153, August 1950.

Heldenfels, Richard R.; Zender, George W.; and Libove, Charles: Stress and Distortion Analysis of a Swept Box Beam Having Bulkheads Perpendicular to the Spars. TN 2232, November 1950.

Rosecrans, Richard: A Method for Calculating Stresses in Torsion-Box Covers with Cutouts. TN 2290, February 1951.

DIAGONAL TENSION
(4.3.4.2)

Peterson, James P.: Experimental Investigation of Stiffened Circular Cylinders Subjected to Combined Torsion and Compression. TN 2188, September 1950.

SHELLS
(4.3.5)

Reissner, Eric: Small Bending and Stretching of Sandwich-Type Shells. Rept. 975, 1950.

Heldenfels, Richard R.: The Effect of Nonuniform Temperature Distributions on the Stresses and Distortions of Stiffened-Shell Structures. TN 2240, November 1950.

Heldenfels, Richard R.: A Numerical Method for the Stress Analysis of Stiffened-Shell Structures under Nonuniform Temperature Distributions. TN 2241, November 1950.

Vlasov, V. S.: Basic Differential Equations in General Theory of Elastic Shells. TN 2241, February 1951.

Kavanaugh, E. S. and Drinkwater, W. D.: Torsional Strength of Stiffened D-Tubes. TN 2362, May 1951.

Circular
(4.3.5.1.1)

Batdorf, S. B.: A Simplified Method of Elastic-Stability Analysis for Thin Cylindrical Shells. II - Modified Equilibrium Equation. Rept. 874, 1947.

Batdorf, S. B.; Schildcrout, Murry; and Stein, Manuel: Critical Stress of Thin-Walled Cylinders in Axial Compression. Rept. 887, 1947.

Hoff, N. J. and Libby, Paul A.: Recommendations for Numerical Solution of Reinforced-Panel and Fuselage-Ring Problems. Rept. 934, 1949.

Hoff, N. J.; Boley, Bruno A.; and Mele, Joseph J.: Stresses in and General Instability of Monocoque Cylinders with Cutouts. VII - Experimental Investigation of Cylinders Having Either Long Bottom Cutouts or Series of Side Cutouts. TN 1962, October 1949.

Hoff, N. J.; Boley, Bruno A.; and Mandel, Mervin W.: Stresses in and General Instability of Monocoque Cylinders with Cutouts. VIII - Calculation of the Buckling Load of Cylinders with Long Symmetric Cutout Subjected to Pure Bending. TN 1963, October 1949.

Stein, Manuel; Sanders, J. Lyell, Jr.; and Crate, Harold: Critical Stress of Ring-Stiffened Cylinders in Torsion. Rept. 989, 1950.

Stein, Manuel and Mayers, J.: A Small-Deflection Theory for Curved Sandwich Plates. TN 2017, February 1950.

Peterson, James P.: Experimental Investigation of Stiffened Circular Cylinders Subjected to Combined Torsion and Compression. TN 2188, September 1950.

Lo, Hsu; Crate, Harold; and Schwartz, Edward B.: Buckling of Thin-Walled Cylinder under Axial Compression and Internal Pressure. TN 2021, January 1950.

Shells, Cylinders - Circular (Cont.)

Boley, Bruno A.; Kempner, Joseph;
and Mayers, J.: A Numerical Ap-
proach to the Instability Problem
of Monocoque Cylinders. TN 2354,
April 1951.

Elliptical
(4.3.5.1.2)

Hoff, N. J. and Libby, Paul A.: Rec-
ommendations for Numerical Solu-
tion of Reinforced-Panel and
Fuselage-Ring Problems. Rept.
934, 1949.

CONNECTIONS

(4.3.6)

BOLTED
(4.3.6.1)

Hartmann, E. C.; Holt, Marshall;
and Eaton, I. D.: Static and
Fatigue Strengths of High-Strength
Aluminum-Alloy Bolted Joints.
TN 2276, February 1951.

RIVETED
(4.3.6.2)

Holt, Marshall: Results of Shear
Fatigue Tests of Joints with
3/16-Inch-Diameter 24S-T31
Rivets in 0.064-Inch-Thick Alclad
Sheet. TN 2012, February 1950.

Dow, Norris F. and Hickman,
William A.: Effect of Variation in
Rivet Diameter and Pitch on the
Average Stress at Maximum Load
for 24S-T3 and 75S-T6 Aluminum-
Alloy, Flat, Z-Stiffened Panels
that Fail by Local Instability. TN
2139, July 1950.

Grieshaber, H. E.: Static and Impact
Strengths of Riveted and Spot-
Welded Beams of Alclad 14S-T6,
Alclad 75S-T6, and Various
Temperatures of Alclad 24S Aluminum
Alloy. TN 2157, August 1950.

WELDED
(4.3.6.3)

Grieshaber, H. E.: Static and Impact
Strengths of Riveted and Spot-Welded
Beams of Alclad 14S-T6, Alclad
75S-T6, and Various Temperatures of
Alclad 24S Aluminum Alloy. TN
2157, August 1950.

LOADS AND STRESSES

(4.3.7)

Heldenfels, Richard R.: The Effect of
Nonuniform Temperature Distribu-
tions on the Stresses and Distortions
of Stiffened-Shell Structures. TN
2240, November 1950.

Heldenfels, Richard R.: A Numerical
Method for the Stress Analysis of
Stiffened-Shell Structures under
Nonuniform Temperature Distribu-
tions. TN 2241, November 1950.

TENSION
(4.3.7.1)

Stowell, Elbridge Z.: Stress and Strain
Concentration at a Circular Hole in
an Infinite Plate. TN 2073, April
1950.

Seide, Paul and Barrett, Paul F.: The
Stability of the Compression Cover
of Box Beams Stiffened by Posts.
TN 2153, August 1950.

COMPRESSION
(4.3.7.2)

Batdorf, S. B.: A Simplified Method of
Elastic-Stability Analysis for Thin
Cylindrical Shells. II - Modified
Equilibrium Equation. Rept. 874,
1947.

Batdorf, S. B.; Schilderout, Murry;
and Stein, Manuel: Critical Stress
of Thin-Walled Cylinders in Axial
Compression. Rept. 887, 1947.

Stowell, Elbridge Z.: A Unified Theory
of Plastic Buckling of Columns and
Plates. Rept. 898, 1948.

Compression (Cont.)

- Stowell, Elbridge Z. and Pride, Richard A.: Plastic Buckling of Extruded Composite Sections in Compression. TN 1971, October 1949.
- Goodman, Stanley: Elastic Buckling of Outstanding Flanges Clamped at One Edge and Reinforced by Bulbs at Other Edge. TN 1985, October 1949.
- Hickman, William A. and Dow, Norris F.: Data on the Compressive Strength of 75S-T6 Aluminum-Alloy Flat Panels having Small, Thin, Widely Spaced, Longitudinal Extruded Z-Section Stiffeners. TN 1978, November 1949.
- Stowell, Elbridge Z.: Plastic Buckling of a Long Flat Plate under Combined Shear and Longitudinal Compression. TN 1990, December 1949.
- Heimerl, George J. and Roberts, William M.: Determination of Plate Compressive Strengths at Elevated Temperatures. Rept. 960, 1950.
- Seide, Paul and Stowell, Elbridge Z.: Elastic and Plastic Buckling of Simply Supported Metalite Type Sandwich Plates in Compression. Rept. 967, 1950.
- Stowell, Elbridge Z.: Compressive Strength of Flanges. TN 2020, January 1950.
- Lo, Hsu; Crate, Harold; and Schwartz, Edward B.: Buckling of Thin-Walled Cylinder under Axial Compression and Internal Pressure. TN 2021, January 1950.
- Dow, Norris F. and Hickman, William A.: Effect of Variation in Rivet Diameter and Pitch on the Average Stress at Maximum Load for 24S-T3 and 75S-T6 Aluminum-Alloy, Flat, Z-Stiffened Panels that Fail by Local Instability. TN 2139, July 1950.
- Seide, Paul and Barrett, Paul F.: The Stability of the Compression Cover of Box Beams Stiffened by Posts. TN 2153, August 1950.
- Houbolt, John C. and Stowell, Elbridge Z.: Critical Stress of Plate Columns. TN 2163, August 1950.
- Thielemann, Wilhelm: Contribution to the Problem of Buckling of Orthotropic Plates, with Special Reference to Plywood. TM 1263, August 1950.
- Goodman, Stanley: Lateral Elastic Instability of Hat-Section Stringers under Compressive Load. TN 2272, January 1951.

BENDING
(4.3.7.3)

- Hoff, N. J.; Boley, Bruno A.; and Mele, Joseph J.: Stresses in and General Instability of Monocoque Cylinders with Cutouts. VII - Experimental Investigation of Cylinders Having Either Long Bottom Cutouts or Series of Side Cutouts. TN 1962, October 1949.
- Hoff, N. J.; Boley, Bruno A.; and Mandel, Mervyn W.: Stresses in and General Instability of Monocoque Cylinders with Cutouts. VIII - Calculation of the Buckling Load of Cylinders with Long Symmetric Cutout Subjected to Pure Bending. TN 1963, October 1949.
- Reissner, Eric: Small Bending and Stretching of Sandwich-Type Shells. Rept. 975, 1950.
- Seide, Paul and Barrett, Paul F.: The Stability of the Compression Cover of Box Beams Stiffened by Posts. TN 2153, August 1950.
- Williams, Harry A.: An Investigation of Pure Bending in the Plastic Range when Loads are not Parallel to a Principal Plane. TN 2287, February 1951.

Bending (Cont.)

De Guillenchmidt, P.: Calculation of the Bending Stresses in Helicopter Rotor Blades. TM 1312, March 1951.

Boley, Bruno A.; Kempner, Joseph; and Mayers, J.: A Numerical Approach to the Instability Problem of Monocoque Cylinders. TN 2354, April 1951.

TORSION
(4.3.7.4)

Batdorf, S. B.: A Simplified Method of Elastic-Stability Analysis for Thin Cylindrical Shells. II - Modified Equilibrium Equation. Rept. 874, 1947.

Stein, Manuel; Sanders, J. Lyell, Jr.; and Crate, Harold: Critical Stress of Ring-Stiffened Cylinders in Torsion. Rept. 989, 1950.

Rosecrans, Richard: A Method for Calculating Stresses in Torsion-Box Covers with Cutouts. TN 2290, February 1951.

Kavanaugh, E. S. and Drinkwater, W. D.: Torsional Strength of Stiffened D-Tubes. TN 2362, May 1951.

Reissner, Eric and Stein, Manuel: Torsion and Transverse Bending of Cantilever Plates. TN 2369, June 1951.

SHEAR
(4.3.7.5)

Stein, Manuel and Yaeger, David J.: Critical Shear Stress of a Curved Rectangular Panel with a Central Stiffener. TN 1972, October 1949.

Stowell, Elbridge Z.: Plastic Buckling of a Long Flat Plate under Combined Shear and Longitudinal Compression. TN 1990, December 1949.

Thielemann, Wilhelm: Contribution to the Problem of Buckling of Orthotropic Plates, with Special Reference to Plywood. TM 1263, August 1950.

Werren, Fred and Norris, Charles B.: Analysis of Shear Strength of Honeycomb Cores for Sandwich Constructions. TN 2208, October 1950.

CONCENTRATED
(4.3.7.6)

Wu, M. H. Lee: Analysis of Plane-Stress Problems with Axial Symmetry in Strain-Hardening Range. TN 2217, December 1950.

Wu, M. H. Lee: Linearized Solution and General Plastic Behavior of Thin Plate with Circular Hole in Strain-Hardening Range. TN 2301, March 1951.

DYNAMIC
(4.3.7.7)

Wilterdink, P. I.: Experimental Investigation of Rim Cracking in Disks Subjected to High Temperature Gradients. RM E9F16, September 1949.

Matheny, Cloyce E.: Maximum Pitching Angular Accelerations of Airplanes Measured in Flight. TN 2103, May 1950.

Kruszewski, Edwin T. and Houbolt, John C.: The Calculation of Modes and Frequencies of a Modified Structure from Those of the Unmodified Structure. TN 2132, July 1950.

Fearnow, Dwight O.: Investigation of the Structural Damping of a Full-Scale Airplane Wing. RM L51A04, March 1951.

De Guillenchmidt, P.: Calculation of the Bending Stresses in Helicopter Rotor Blades. TM 1312, March 1951.

Dynamic (Cont.)

Miller, Robert W. and Merten, Kenneth F.: Comparison of Theoretical and Experimental Response of a Single-Mode Elastic System in Hydrodynamic Impact. TN 2343, April 1951.

Gossard, Myron L.: An Iterative Transformation Procedure for Numerical Solution of Flutter and Similar Characteristic-Value Problems. TN 2346, May 1951.

Repeated
(4.3.7.7.1)

Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.

Holt, Marshall: Results of Shear Fatigue Tests of Joints with 3/16-Inch-Diameter 24S-T31 Rivets in 0.064-Inch-Thick Alclad Sheet. TN 2012, February 1950.

Gassner, E.: Preliminary Results from Fatigue Tests with Reference to Operational Statistics. TM 1266, May 1950.

Transient
(4.3.7.7.2)

Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.

Houbolt, John C.: A Recurrence Matrix Solution for the Dynamic Response of Aircraft in Gusts. TN 2060, March 1950.

Merten, Kenneth F.; Rodríguez, José L.; and Beck, Edgar B.: A Comparison of Theoretical and Experimental Wing Bending Moments during Seaplane Landings. TN 2063, April 1950.

Gassner, E.: Preliminary Results from Fatigue Tests with Reference to Operational Statistics. TM 1266, May 1950.

NORMAL PRESSURES
(4.3.7.8)

Lo, Hsu; Crate, Harold; and Schwartz, Edward B.: Buckling of Thin-Walled Cylinder under Axial Compression and Internal Pressure. TN 2021, January 1950.

M

MATERIALS
(5)

Types

(5.1)

Machlin, E. S.: Dislocation Theory of the Fatigue of Metals. Rept. 929, 1949.

ALUMINUM

(5.1.1)

Hill, H. N. and Barker, R. S.: Effect of Open Circular Holes on Tensile Strength and Elongation of Sheet Specimens of Some Aluminum Alloys. TN 1974, October 1949.

Hickman, William A. and Dow, Norris F.: Data on the Compressive Strength of 75S-T6 Aluminum-Alloy Flat Panels Having Small, Thin, Widely Spaced, Longitudinal Extruded Z-Section Stiffeners. TN 1978, November 1949.

Heimerl, George J. and Roberts, William M.: Determination of Plate Compressive Strengths at Elevated Temperatures. Rept. 960, 1950.

Holt, Marshall: Results of Shear Fatigue Tests of Joints with 3/16-Inch-Diameter 24S-T31 Rivets in 0.064-Inch-Thick Alclad Sheet. TN 2012, February 1950.

Batdorf, S. B.: The Interpretation of Biaxial-Tension Experiments Involving Constant Stress Ratios. TN 2029, February 1950.

Miller, James A.: Stress-Strain and Elongation Graphs for Aluminum-Alloy 75S-T6 Sheet. TN 2085, April 1950.

Bogardus, K. O.; Stickley, G. W.; and Howell, F. M.: A Review of Information on the Mechanical Properties of Aluminum Alloys at Low Temperatures. TN 2082, May 1950.

Miller, James A.: Stress-Strain and Elongation Graphs for Alclad Aluminum-Alloy 24S-T86 Sheet. TN 2094, May 1950.

Dow, Norris F. and Hickman, William A.: Effect of Variation in Rivet Diameter and Pitch on the Average Stress at Maximum Load for 24S-T3 and 75S-T6 Aluminum-Alloy, Flat, Z-Stiffened Panels That Fail by Local Instability. TN 2139, July 1950.

Grieshaber, H. E.: Static and Impact Strengths of Riveted and Spot-Welded Beams of Alclad 14S-T6, Alclad 75S-T6, and Various Tempers of Alclad 24S Aluminum Alloy. TN 2157, August 1950.

Smith, Frank C.; Brueggeman, William C.; and Harwell, Richard H.: Comparison of Fatigue Strengths of Bare and Alclad 24S-T3 Aluminum-Alloy Sheet Specimens Tested at 12 and 1000 Cycles per Minute. TN 2231, December 1950.

Heimerl, George J. and Barrett, Paul F.: A Structural-Efficiency Evaluation of Titanium at Normal and Elevated Temperatures. TN 2269, January 1951.

Hartmann, E. C.; Holt, Marshall; and Eaton, I. D.: Static and Fatigue Strengths of High-Strength Aluminum-Alloy Bolted Joints. TN 2276, February 1951.

Reinhart, Fred M.: Exposure Tests of Galvanized-Steel-Stitched Aluminum Alloys. TN 2299, February 1951.

Finley, E. M.: Bearing Strengths of Some Aluminum-Alloy Permanent-Mold Castings. TN 2312, February 1951.

Aluminum (Cont.)

Grover, H. J.; Bishop, S. M.; and Jackson, L. R.: Fatigue Strengths of Aircraft Materials. Axial-Load Fatigue Tests on Unnotched Sheet Specimens of 24S-T3 and 75S-T6 Aluminum Alloys and of SAE 4130 Steel. TN 2324, March 1951.

MAGNESIUM

(5.1.2)

Grube, K.; Davis, J. A.; Eastwood, L. W.; Lorig, C. H.; and Cross, H. C.: Improvement of High-Temperature Properties of Magnesium-Cerium Forging Alloys. TN 2097, May 1950.

Heimerl, George J. and Barrett, Paul F.: A Structural-Efficiency Evaluation of Titanium at Normal and Elevated Temperatures. TN 2269, January 1951.

Grube, K.; Kaiser, R.; Eastwood, L. W.; Schwartz, C. M.; and Cross, H. C.: Development of Magnesium-Cerium Forged Alloys for Elevated-Temperature Service. TN 2325, March 1951.

STEELS

(5.1.3)

Garrett, Floyd B. and Yaker, Charles: Turbojet-Engine Evaluation of AISI 321 and AISI 347 Stainless Steels as Nozzle-Blade Materials. RM E9K17, February 1950.

Reynolds, E. E.; Freeman, J. W.; and White, A. E.: Investigation of Properties of AISI Type 310B Alloy Sheet at High Temperatures. TN 2162, August 1950.

Heimerl, George J. and Barrett, Paul F.: A Structural-Efficiency Evaluation of Titanium at Normal and Elevated Temperatures. TN 2269, January 1951.

Grover, H. J.; Bishop, S. M.; and Jackson, L. R.: Fatigue Strengths of Aircraft Materials. Axial-Load Fatigue Tests on Unnotched Sheet Specimens of 24S-T3 and 75S-T6 Aluminum Alloys and of SAE 4130 Steel. TN 2324, March 1951.

HEAT-RESISTING ALLOYS

(5.1.4)

Farmer, J. Elmo; Deutsch, George C.; and Sikora, Paul F.: Cyclic Engine Test of Cast Vitallium Turbine Buckets - II. RM E7J24, January 1948.

Farmer, J. Elmo; Darmara, F. N.; and Poulson, Francis D.: Cyclic Engine Test of Cast Vitallium Turbine Buckets - I. RM E7J23, February 1948.

Hamjian, H. J. and Lidman, W. G.: Investigation of Bonding between Metals and Ceramics. I - Nickel, Cobalt, Iron, or Chromium with Boron Carbide. TN 1948, September 1949.

Wilterdink, P. I.: Experimental Investigation of Rim Cracking in Disks Subjected to High Temperature Gradients. RM E9F16, September 1949.

Weeton, John W.: Mechanisms of Failure of High Nickel-Alloy Turbojet Combustion Liners. TN 1938, October 1949.

Whitman, M. J.; Hall, R. W.; and Yaker, C.: Resistance of Six Cast High-Temperature Alloys to Cracking Caused by Thermal Shock. TN 2037, February 1950.

Garrett, Floyd B. and Yaker, Charles: Turbojet-Engine Evaluation of AISI 321 and AISI 347 Stainless Steels as Nozzle-Blade Materials. RM E9K17, February 1950.

Lidman, W. G. and Hamjian, H. J.: Properties of a Boron Carbide-Iron Ceramal. TN 2050, March 1950.

Heat-Resisting Alloys (Cont.)

- Hoffman, Charles A. and Yaker, Charles: Effects of an Aging Treatment on Life of Small Cast Vitallium Gas-Turbine Blades. TN 2052, March 1950.
- Hamjian, H. J. and Lidman, W. G.: Sintering Mechanism between Zirconium Carbide and Columbium. TN 2198, October 1950.
- Weeton, John W.: Diffusion of Chromium in α Cobalt-Chromium Solid Solutions. TN 2218, November 1950.
- Brown, W. F., Jr.; Schwartzbart, H.; and Jones, M. H.: Tensile-Fracturing Characteristics of Several High-Temperature Alloys as Influenced by Orientation in Respect to Forging Direction. RM E50L28, February 1951.
- Long, R. A.; Dike, K. C.; and Bear, H. R.: Some Properties of High-Purity Sintered Wrought Molybdenum Metal at Temperatures up to 2400° F. TN 2319, March 1951.
- Yaker, C. and Hoffman, C. A.: Effects of Some Solution Treatments Followed by an Aging Treatment on the Life of Small Cast Gas-Turbine Blades of a Cobalt-Chromium-Base Alloy - Part I, Effect of Solution-Treating Temperature. TN 2320, March 1951.
- NACA Subcommittee on Heat-Resisting Materials: Cooperative Investigation of Relationship between Static and Fatigue Properties of Heat-Resistant Alloys at Elevated Temperatures. RM 51A04, March 1951.

CERAMICS
(5.1.5)

- Hamjian, H. J. and Lidman, W. G.: Investigation of Bonding between Metals and Ceramics. I - Nickel, Cobalt, Iron, or Chromium with Boron Carbide. TN 1948, September 1949.

- Lidman, W. G. and Hamjian, H. J.: Properties of a Boron Carbide-Iron Ceramal. TN 2050, March 1950.

- Freche, John C.: Further Investigation of a Gas Turbine with National Bureau of Standards Body 4811C Ceramic Rotor Blades. RM E9L07, March 1950.

- Engel, Walter J.: Bonding Investigation of Titanium Carbide with Various Elements. TN 2187, September 1950.

- Hamjian, H. J. and Lidman, W. G.: Sintering Mechanism between Zirconium Carbide and Columbium. TN 2198, October 1950.

- Moore, Dwight G.; Benner, Stanley G.; and Harrison, William N.: High-Temperature Protection of a Titanium-Carbide Ceramal with a Ceramic-Metal Coating Having a High Chromium Content. TN 2329, March 1951.

- Robards, C. F. and Gangler, J. J.: Some Properties of Beryllium Oxide and Beryllium Oxide - Columbium Ceramals. RM E50G21, March 1951.

PLASTICS
(5.1.6)

- Wier, John E.; Pons, Dorothy C.; and Axilrod, Benjamin M.: Effects of Molding Conditions on Some Physical Properties of Glass-Fabric Unsaturated-Polyester Laminates. RM 50J19, November 1950.
- Axilrod, B. M. and Sherman, Martha A.: Strength of Heat-Resistant Laminates up to 375° C. TN 2266, February 1951.
- Kline, G. M.: The Properties of Three Cast Polyester Resins of Sierracin 212, 212A, and 250A. RM 51B23, April 1951.

WOODS (5.1.7)

Thielemann, Wilhelm: Contribution to the Problem of Buckling of Orthotropic Plates, with Special Reference to Plywood. TM 1263, August 1950.

ADHESIVES (5.1.8)

Eickner, H. W.: Evaluation of Several Adhesives and Processes for Bonding Sandwich Constructions of Aluminum Facings on Paper Honeycomb Core. TN 2106, May 1950.

PROTECTIVE COATINGS (5.1.9)

Buchert, Kenneth P.: Stability of Alclad Plates. TN 1986, December 1949.

Moore, Dwight G.; Benner, Stanley G.; and Harrison, William N.: High-Temperature Protection of a Titanium-Carbide Ceramal with a Ceramic-Metal Coating Having a High Chromium Content. TN 2329, March 1951.

FABRICS (5.1.10)

Jones, Ira P., Jr. and Klinar, Walter J.: Spin-Tunnel Investigation to Determine the Effect on Spin Recoveries of Reducing the Opening Shock Load of Spin-Recovery Parachutes. TN 2051, March 1950.

SANDWICH & LAMINATES (5.1.11)

Libove, Charles and Batdorf, S. B.: A General Small-Deflection Theory for Flat Sandwich Plates. Rept. 899, 1948.

Seide, Paul and Stowell, Elbridge Z.: Elastic and Plastic Buckling of Simply Supported Metalite Type Sandwich Plates in Compression. Rept. 967, 1950.

Reissner, Eric: Small Bending and Stretching of Sandwich-Type Shells. Rept. 975, 1950.

Stein, Manuel and Mayers, J.: A Small-Deflection Theory for Curved Sandwich Plates. TN 2017, February 1950.

Kommers, W. J.: Strength Properties of Rayon-Mat Honeycomb Core Materials. TN 2084, April 1950.

Eickner, H. W.: Evaluation of Several Adhesives and Processes for Bonding Sandwich Constructions of Aluminum Facings on Paper Honeycomb Core. TN 2106, May 1950.

Norris, C. B. and Ringelstetter, L. A.: Shear Stress Distribution along Glue Line between Skin and Cap-Strip of an Aircraft Wing. TN 2152, July 1950.

Thielemann, Wilhelm: Contribution to the Problem of Buckling of Orthotropic Plates, with Special Reference to Plywood. TM 1263, August 1950.

Werren, Fred and Norris, Charles B.: Analysis of Shear Strength of Honeycomb Cores for Sandwich Constructions. TN 2208, October 1950.

Hoff, N. J.: Bending and Buckling of Rectangular Sandwich Plates. TN 2225, November 1950.

Wier, John E.; Pons, Dorothy C.; and Axilrod, Benjamin M.: Effects of Molding Conditions on Some Physical Properties of Glass-Fabric Unsaturated-Polyester Laminates. RM 50J19, November 1950.

Ringelstetter, L. A.; Voss, A. W.; and Norris, C. B.: Effect of Cell Shape on Compressive Strength of Hexagonal Honeycomb Structures. TN 2243, December 1950.

Sandwich and Laminates (Cont.)

Axilrod, B. M. and Sherman,
Martha A.: Strength of Heat-
Resistant Laminates up to 375° C.
TN 2266, February 1951.

Libove, Charles and Hubka, Ralph E.:
Elastic Constants for Corrugated-
Core Sandwich Plates. TN 2289,
February 1951.

CERAMALS

(5.1.12)

Lidman, W. G. and Hamjian, H. J.:
Properties of a Boron Carbide-
Iron Ceramal. TN 2050, March
1950.

Engel, Walter J.: Bonding Investiga-
tion of Titanium Carbide with
Various Elements. TN 2187,
September 1950.

Hamjian, H. J. and Lidman, W. G.:
Sintering Mechanism between
Zirconium Carbide and Columbium.
TN 2198, October 1950.

Moore, Dwight G.; Benner, Stanley G.;
and Harrison, William N.: High-
Temperature Protection of a
Titanium-Carbide Ceramal with
a Ceramic-Metal Coating Having
a High Chromium Content. TN
2329, March 1951.

Robards, C. F. and Gangler, J. J.:
Some Properties of Beryllium
Oxide and Beryllium Oxide -
Columbium Ceramals. RM
E50G21, March 1951.

Properties

(5.2)

Whitman, M. J.; Hall, R. W.; and Yaker, C.: Resistance of Six Cast High-Temperature Alloys to Cracking Caused by Thermal Shock. TN 2037, February 1950.

Grube, K.; Davis, J. A.; Eastwood, L. W.; Lorig, C. H.; and Cross, H. C.: Improvement of High-Temperature Properties of Magnesium-Cerium Forging Alloys. TN 2097, May 1950.

Engel, Walter J.: Bonding Investigation of Titanium Carbide with Various Elements. TN 2187, September 1950.

Wier, John E.; Pons, Dorothy C.; and Axilrod, Benjamin M.: Effects of Molding Conditions on Some Physical Properties of Glass-Fabric Unsaturated-Polyester Laminates. RM 50J19, November 1950.

Long, R. A.; Dike, K. C.; and Bear, H. R.: Some Properties of High-Purity Sintered Wrought Molybdenum Metal at Temperatures up to 2400° F. TN 2319, March 1951.

TENSILE

(5.2.1)

Hill, H. N. and Barker, R. S.: Effect of Open Circular Holes on Tensile Strength and Elongation of Sheet Specimens of Some Aluminum Alloys. TN 1974, October 1949.

Batdorf, S. B.: The Interpretation of Biaxial-Tension Experiments Involving Constant Stress Ratios. TN 2029, February 1950.

Miller, James A.: Stress-Strain and Elongation Graphs for Aluminum-Alloy 75S-T6 Sheet. TN 2085, April 1950.

Miller, James A.: Stress-Strain and Elongation Graphs for Alclad Aluminum-Alloy 24S-T86 Sheet. TN 2094, May 1950.

Eickner, H. W.: Evaluation of Several Adhesives and Processes for Bonding Sandwich Constructions of Aluminum Facings on Paper Honeycomb Core. TN 2106, May 1950.

Reynolds, E. E.; Freeman, J. W.; and White, A. E.: Investigation of Properties of AISI Type 310B Alloy Sheet at High Temperatures. TN 2162, August 1950.

Kuntze, W.: Dependence of the Elastic Strain Coefficient of Copper on the Pre-Treatment. TM 1287, August 1950.

Brown, W. F., Jr.; Schwartzbart, H.; and Jones, M. H.: Tensile-Fracturing Characteristics of Several High-Temperature Alloys as Influenced by Orientation in Respect to Forging Direction. RM E50L28, February 1951.

Long, R. A.; Dike, K. C.; and Bear, H. R.: Some Properties of High-Purity Sintered Wrought Molybdenum Metal at Temperatures up to 2400° F. TN 2319, March 1951.

Grube, K.; Kaiser, R.; Eastwood, L. W.; Schwartz, C. M.; and Cross, H. C.: Development of Magnesium-Cerium Forged Alloys for Elevated-Temperature Service. TN 2325, March 1951.

Tensile (Cont.)

Robards, C. F. and Gangler, J. J.:
Some Properties of Beryllium
Oxide and Beryllium Oxide -
Columbium Ceramals. RM
E50G21, March 1951.

COMPRESSIVE
(5.2.2)

Barrett, Paul F.: Compressive Prop-
erties of Titanium Sheet at Ele-
vated Temperatures. TN 2038,
February 1950.

Miller, James A.: Stress-Strain and
Elongation Graphs for Aluminum-
Alloy 75S-T6 Sheet. TN 2085,
April 1950.

Miller, James A.: Stress-Strain and
Elongation Graphs for Alclad
Aluminum-Alloy 24S-T86 Sheet.
TN 2094, May 1950.

Ringelstetter, L. A.; Voss, A. W.;
and Norris, C. B.: Effect of
Cell Shape on Compressive
Strength of Hexagonal Honeycomb
Structures. TN 2243, December
1950.

Finley, E. M.: Bearing Strengths of
Some Aluminum-Alloy Permanent-
Mold Castings. TN 2312, Febru-
ary 1951.

CREEP
(5.2.3)

Machlin, E. S.: Dislocation Theory
of the Fatigue of Metals. Rept.
929, 1949.

Neurath, Peter W. and Koehler, J. S.:
Creep of Lead at Various Tem-
peratures. TN 2322, March 1951.

STRESS-RUPTURE
(5.2.4)

Hoffman, Charles A. and Yaker,
Charles: Effects of an Aging
Treatment on Life of Small Cast
Vitalium Gas-Turbine Blades.
TN 2052, March 1950.

Reynolds, E. E.; Freeman, J. W.; and
White, A. E.: Investigation of
Properties of AISI Type 310B Alloy
Sheet at High Temperatures. TN
2162, August 1950.

Long, R. A.; Dike, K. C.; and Bear,
H. R.: Some Properties of High-
Purity Sintered Wrought Molyb-
denum Metal at Temperatures up
to 2400° F. TN 2319, March 1951.

Yaker, C. and Hoffman, C. A.: Effects
of Some Solution Treatments Fol-
lowed by an Aging Treatment on the
Life of Small Cast Gas-Turbine
Blades of a Cobalt-Chromium-Base
Alloy - Part I, Effect of Solution-
Treating Temperature. TN 2320,
March 1951.

FATIGUE
(5.2.5)

Machlin, E. S.: Dislocation Theory of
the Fatigue of Metals. Rept. 929,
1949.

Wilterdink, P. I.: Experimental Inves-
tigation of Rim Cracking in Disks
Subjected to High Temperature
Gradients. RM E9F16, September
1949.

Weeton, John W.: Mechanisms of
Failure of High Nickel-Alloy Turbo-
jet Combustion Liners. TN 1938,
October 1949.

Buske, A. and Rolli, W.: Measurement
of Oil-Film Pressures in Journal
Bearings under Constant and Vari-
able Loads. TM 1200, November
1949.

Holt, Marshall: Results of Shear Fatigue
Tests of Joints with 3/16-Inch-
Diameter 24S-T31 Rivets in 0.064-
Inch-Thick Alclad Sheet. TN 2012,
February 1950.

Gassner, E.: Preliminary Results from
Fatigue Tests with Reference to
Operational Statistics. TM 1266,
May 1950.

Fatigue (Cont.)

- Smith, Frank C.; Brueggeman, William C.; and Harwell, Richard H.: Comparison of Fatigue Strengths of Bare and Alclad 24S-T3 Aluminum-Alloy Sheet Specimens Tested at 12 and 1000 Cycles per Minute. TN 2231, December 1950.
- Hartmann, E. C.; Holt, Marshall; and Eaton, I. D.: Static and Fatigue Strengths of High-Strength Aluminum-Alloy Bolted Joints. TN 2276, February 1951.
- Grover, H. J.; Bishop, S. M.; and Jackson, L. R.: Fatigue Strengths of Aircraft Materials. Axial-Load Fatigue Tests on Unnotched Sheet Specimens of 24S-T3 and 75S-T6 Aluminum Alloys and of SAE 4130 Steel. TN 2324, March 1951.
- Smith, Frank C.; Howard, Darnley M.; Smith, Ira; and Harwell, Richard: Fatigue Testing Machine for Applying a Sequence of Loads of Two Amplitudes. TN 2327, March 1951.
- NACA Subcommittee on Heat-Resisting Materials: Cooperative Investigation of Relationship between Static and Fatigue Properties of Heat-Resistant Alloys at Elevated Temperatures. RM 51A04, March 1951.
- Fearnow, Dwight O.: Investigation of the Structural Damping of a Full-Scale Airplane Wing. RM L51A04, March 1951.

SHEAR

(5.2.6)

- Norris, C. B. and Ringelstetter, L. A.: Shear Stress Distribution along Glue Line between Skin and Cap-Strip of an Aircraft Wing. TN 2152, July 1950.

FLEXURAL

(5.2.7)

- Axilrod, B. M. and Sherman, Martha A.: Strength of Heat-Resistant Laminates up to 375° C. TN 2266, February 1951.
- NACA Subcommittee on Heat-Resisting Materials: Cooperative Investigation of Relationship between Static and Fatigue Properties of Heat-Resistant Alloys at Elevated Temperatures. RM 51A04, March 1951.

CORROSION RESISTANCE

(5.2.8)

- Garrett, Floyd B. and Yaker, Charles: Turbojet-Engine Evaluation of AISI 321 and AISI 347 Stainless Steels as Nozzle-Blade Materials. RM E9K17, February 1950.
- Lidman, W. G. and Hamjian, H. J.: Properties of a Boron Carbide-Iron Ceramal. TN 2050, March 1950.
- Reinhart, Fred M.: Exposure Tests of Galvanized-Steel-Stitched Aluminum Alloys. TN 2299, February 1951.
- Moore, Dwight G.; Benner, Stanley G.; and Harrison, William N.: High-Temperature Protection of a Titanium-Carbide Ceramal with a Ceramic-Metal Coating Having a High Chromium Content. TN 2329, March 1951.

STRUCTURE

(5.2.9)

- Weeton, John W.: Mechanisms of Failure of High Nickel-Alloy Turbojet Combustion Liners. TN 1938, October 1949.
- Lidman, W. G. and Hamjian, H. J.: Properties of a Boron Carbide-Iron Ceramal. TN 2050, March 1950.

Structure (Cont.)

Hamjian, H. J. and Lidman, W. G.: Sintering Mechanism between Zirconium Carbide and Columbium. TN 2198, October 1950.

Long, R. A.; Dike, K. C.; and Bear, H. R.: Some Properties of High-Purity Sintered Wrought Molybdenum Metal at Temperatures up to 2400° F. TN 2319, March 1951.

Grube, K.; Kaiser, R.; Eastwood, L. W.; Schwartz, C. M.; and Cross, H. C.: Development of Magnesium-Cerium Forged Alloys for Elevated-Temperature Service. TN 2325, March 1951.

**EFFECTS OF NUCLEAR
RADIATION
(5.2.10)**

Allen, G.: Analytical Method for Determining Transmission and Absorption of Time-Dependent Radiation through Thick Absorbers. II - Source Intensity, Time-Dependent. TN 1952, September 1949.

Allen, G.: Tables for Determining Reduction of Energy and Intensity of X-Rays and Gamma-Rays at Various Scattering Angles in Small Thicknesses of Matter. TN 2026, February 1950.

Allen, G.: Analytical Method for Determining Transmission and Absorption of Time-Dependent Radiation through Thick Absorbers. III - Absorber with Radioactive Daughter Products. TN 2108, June 1950.

**THERMAL
(5.2.11)**

Heimerl, George J. and Barrett, Paul F.: A Structural-Efficiency Evaluation of Titanium at Normal and Elevated Temperatures. TN 2269, January 1951.

Robards, C. F. and Gangler, J. J.: Some Properties of Beryllium Oxide and Beryllium Oxide - Columbium Ceramals. RM E50G21, March 1951.

**MULT-AXIAL STRESS
(5.2.12)**

Batdorf, S. B.: The Interpretation of Biaxial-Tension Experiments Involving Constant Stress Ratios. TN 2029, February 1950.

Wu, M. H. Lee: Analysis of Plane-Stress Problems with Axial Symmetry in Strain-Hardening Range. TN 2217, December 1950.

Wu, M. H. Lee: Linearized Solution and General Plastic Behavior of Thin Plate with Circular Hole in Strain-Hardening Range. TN 2301, March 1951.

Wu, M. H. Lee: General Plastic Behavior and Approximate Solutions of Rotating Disk in Strain-Hardening Range. TN 2367, May 1951.

**PLASTICITY
(5.2.13)**

Stowell, Elbridge Z.: Plastic Buckling of a Long Flat Plate under Combined Shear and Longitudinal Compression. TN 1990, December 1949.

Batdorf, S. B.: The Interpretation of Biaxial-Tension Experiments Involving Constant Stress Ratios. TN 2029, February 1950.

Wu, M. H. Lee: Analysis of Plane-Stress Problems with Axial Symmetry in Strain-Hardening Range. TN 2217, December 1950.

Duberg, John E. and Wilder, Thomas W., III: Inelastic Column Behavior. TN 2267, January 1951.

Plasticity (Cont.)

Brown, W. F., Jr.; Schwartzbart, H.;
and Jones, M. H.: Tensile-
Fracturing Characteristics of
Several High-Temperature Alloys
as Influenced by Orientation in
Respect to Forging Direction.
RM E50L28, February 1951.

Wu, M. H. Lee: Linearized Solution
and General Plastic Behavior of
Thin Plate with Circular Hole in
Strain-Hardening Range. TN
2301, March 1951.

Wu, M. H. Lee: General Plastic Be-
havior and Approximate Solutions
of Rotating Disk in Strain-Harden-
ing Range. TN 2367, May 1951.

Operating Stresses and Conditions (5.3)

Hoffman, Charles A. and Yaker, Charles: Effects of an Aging Treatment on Life of Small Cast Vitallium Gas-Turbine Blades. TN 2052, March 1950.

Coleman, Thomas L.: An Analysis of the Normal Accelerations and Airspeeds of Several Lockheed Constellation L-649 Airplanes in Postwar Commercial Transport Operations over the Eastern Part of the United States. RM L9E18a, April 1950.

Hanson, Morgan P.: Effect of Blade-Root Fit and Lubrication on Vibration Characteristics of Ball-Root-Type Axial-Flow-Compressor Blades. RM E50C17, June 1950.

Thornton, James O.: Analysis of V-g Data Obtained from Several Naval Airplanes. RM L9L13, July 1950.

Coleman, Thomas L. and Schumacher, Paul W. J.: An Analysis of the Normal Accelerations and Airspeeds of a Four-Engine Airplane Type in Postwar Commercial Transport Operations on Trans-Pacific and Caribbean - South American Routes. TN 2176, August 1950.

Yaker, C. and Hoffman, C. A.: Effects of Some Solution Treatments Followed by an Aging Treatment on the Life of Small Cast Gas-Turbine Blades of a Cobalt-Chromium-Base Alloy - Part I, Effect of Solution-Treating Temperature. TN 2320, March 1951.

AIRFRAME (5.3.1)

Gassner, E.: Preliminary Results from Fatigue Tests with Reference to Operational Statistics. TM 1266, May 1950.

METEOROLOGY
(6)

Atmosphere

(6.1)

Pekeris, C. L.: Free Oscillations of an Atmosphere in which Temperature Increases Linearly with Height. TN 2209, October 1950.

Pekeris, C. L.: Effect of Quadratic Terms in Differential Equations of Atmospheric Oscillations. TN 2314, March 1951.

GUSTS

(6.1.2)

McDougal, Robert L.: Summary of the First Sample of VGH Data of Normal Accelerations and Associated Operating Conditions on Two Four-Engine Transport Airplanes in Commercial Operations. RM L50D28a, August 1950.

STRUCTURE

(6.1.2.1)

Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.

FREQUENCY

(6.1.2.2)

Lipscomb, J. K. and Lipscomb, V. W.: An Evaluation of the Use of Ground Radar for Avoiding Severe Turbulence Associated with Thunderstorms. TN 1960, October 1949.

Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.

Press, Harry: The Application of the Statistical Theory of Extreme Values to Gust-Load Problems. Rept. 991, 1950.

Coleman, Thomas L.: An Analysis of the Normal Accelerations and Airspeeds of Several Lockheed Constellation L-649 Airplanes in Postwar Commercial Transport Operations over the Eastern Part of the United States. RM L9E18a, April 1950.

Coleman, Thomas L. and Schumacher, Paul W. J.: An Analysis of the Normal Accelerations and Airspeeds of a Four-Engine Airplane Type in Postwar Commercial Transport Operations on Trans-Pacific and Caribbean - South American Routes. TN 2176, August 1950.

Steiner, Roy and McDougal, Robert L.: Summary of Normal Accelerations, Gust Velocities, and Operating Practices from April to August 1949 of a Twin-Engine Airplane in Commercial Transport Operations. RM L50B02, August 1950.

TURBULENCE

(6.1.2.3)

Thompson, J. K. and Lipscomb, V. W.: An Evaluation of the Use of Ground Radar for Avoiding Severe Turbulence Associated with Thunderstorms. TN 1960, October 1949.

Donely, Philip: Summary of Information Relating to Gust Loads on Airplanes. TN 1976, November 1949.

Coleman, Thomas L.: An Analysis of the Normal Accelerations and Airspeeds of Several Lockheed Constellation L-649 Airplanes in Postwar Commercial Transport Operations over the Eastern Part of the United States. RM L9E18a, April 1950.

Turbulence - Atmospheric Gusts (Cont.)

Coleman, Thomas L. and Schumacher, Paul W. J. : An Analysis of the Normal Accelerations and Airspeeds of a Four-Engine Airplane Type in Postwar Commercial Transport Operations on Trans-Pacific and Caribbean - South American Routes. TN 2176, August 1950.

Steiner, Roy and McDougal, Robert L. : Summary of Normal Accelerations, Gust Velocities, and Operating Practices from April to August 1949 of a Twin-Engine Airplane in Commercial Transport Operations. RM L50B02, August 1950.

McDougal, Robert L. : Summary of the First Sample of VGH Data of Normal Accelerations and Associated Operating Conditions on Two Four-Engine Transport Airplanes in Commercial Operations. RM L50D28a, August 1950.

Press, Harry: The Application of the Statistical Theory of Extreme Values to Gust-Load Problems. Rept. 991, 1950.

Schlichting, H. : Turbulence and Heat Stratification. TM 1262, October 1950.

ALLEVIATION
(6.1.2.4)

Reisert, Thomas D. : Gust-Tunnel Investigation of a Flexible-Wing Model with Semichord Line Swept Back 45°. TN 1959, October 1949.

Pierce, Harold B. : Gust-Tunnel Investigation of a Wing Model with Semichord Line Swept Back 60°. TN 2204, October 1950.

Ice Formation (6.2)

Coles, Willard D.; Rollin, Vern G.;
and Mulholland, Donald R.: Icing-
Protection Requirements for Re-
ciprocating-Engine Induction Sys-
tems. Rept. 982, 1950.

Dorsch, Robert G. and Hacker, Paul T.:
Photomicrographic Investigation of
Spontaneous Freezing Temperatures
of Supercooled Water Droplets. TN
2142, July 1950.

Neel, Carr B., Jr. and Bright, Loren G.:
The Effect of Ice Formations on
Propeller Performance. TN 2212,
October 1950.

Levine, Joseph: Statistical Explanation
of Spontaneous Freezing of Water
Droplets. TN 2234, December 1950.

Kline, Dwight B. and Walker, Joseph A.:
Meteorological Analysis of Icing
Conditions Encountered in Low-
Altitude Stratiform Clouds. TN
2306, March 1951.

OPERATING PROBLEMS

(7)

Safety

(7.1)

- Scher, Stanley H. and Draper, John W.: The Effects of Stability of Spin-Recovery Tail Parachutes on the Behavior of Airplanes in Gliding Flight and in Spins. TN 2098, May 1950.
- Berman, Theodore: Spin-Tunnel Investigation of the Jettisoning of External Fuel Tanks in Spins. RM L9J25, November 1949.
- Bihrlle, William, Jr.: Floating Characteristics of Rudders and Elevators in Spinning Attitudes as Determined from Hinge-Moment-Coefficient Data with Application to Personal-Owner-Type Airplanes. TN 2016, January 1950.
- Jones, Ira P., Jr. and Klinar, Walter J.: Spin-Tunnel Investigation to Determine the Effect on Spin Recoveries of Reducing the Opening Shock Load of Spin-Recovery Parachutes. TN 2051, March 1950.
- Huffschnid, A.: Investigation of the Model ME 210 in the Spin Wind Tunnel of the DVL - Fourth Partial Report - Model with a Vee Tail. TM 1222, April 1950.
- Berman, Theodore: Comparison of Model and Full-Scale Spin Test Results for 60 Airplane Designs. TN 2134, July 1950.
- Stone, Ralph W., Jr.; Burke, Sanger M., Jr.; and Bihrlle, William, Jr.: The Aerodynamic Forces and Moments on a 1/10-Scale Model of a Fighter Airplane in Spinning Attitudes as Measured on a Rotary Balance in the Langley 20-Foot Free-Spinning Tunnel. TN 2181, September 1950.
- Scull, Wilfred E.: Relation between Inflammables and Ignition Sources in Aircraft Environments. TN 2227, December 1950.
- Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.
- Bihrlle, William, Jr.: Floating Characteristics of a Plain and a Horn-Balanced Rudder at Spinning Attitudes as Determined from Rotary Tests on a Model of a Typical Low-Wing Personal-Owner Airplane. TN 2359, May 1951.

Navigation

(7.2)

Huston, Wilber B.: Accuracy of Air-speed Measurements and Flight Calibration Procedures. Rept. 919, 1948.

Gracey, William; Coletti, Donald E.; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Supersonic Speeds. TN 2261, January 1951.

Gracey, William and Scheithauer, Elwood F.: Flight Investigation of the Variation of Static-Pressure Error of a Static-Pressure Tube with Distance ahead of a Wing and a Fuselage. TN 2311, March 1951.

Gracey, William; Letko, William; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Subsonic Speeds. TN 2331, April 1951.

Ice Prevention and Removal (7.3)

Gray, Vernon H.: Improvements in Heat Transfer for Anti-Icing of Gas-Heated Airfoils with Internal Fins and Partitions. TN 2126, July 1950.

Dorsch, Robert G. and Hacker, Paul T.: Photomicrographic Investigation of Spontaneous Freezing Temperatures of Supercooled Water Droplets. TN 2142, July 1950.

Koutz, Stanley L.; Hensley, Reece V.; and Rom, Frank E.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. III - Analytical Determination of Effects of Shaft-Power Extraction. TN 2202, October 1950.

Levine, Joseph: Statistical Explanation of Spontaneous Freezing of Water Droplets. TN 2234, December 1950.

Koutz, Stanley L.: Effect of Heat and Power Extraction on Turbojet-Engine Performance. IV - Analytical Determination of Effects of Hot-Gas Bleed. TN 2304, March 1951.

ENGINE INDUCTION SYSTEMS (7.3.1)

Coles, Willard D.; Rollin, Vern G.; and Mulholland, Donald R.: Icing-Protection Requirements for Reciprocating-Engine Induction Systems. Rept. 982, 1950.

PROPELLERS (7.3.2)

Neel, Carr B., Jr. and Bright, Loren G.: The Effect of Ice Formations on Propeller Performance. TN 2212, October 1950.

WINGS TAILS (7.3.3)

Gowan, William H., Jr. and Mulholland, Donald R.: Effectiveness of Thermal-Pneumatic Airfoil-Ice-Protection System. RM E50K10a, April 1951.

MISCELLANEOUS ACCESSORIES (7.3.5)

Ruggeri, Robert S.: Investigation of the Aerodynamic and Icing Characteristics of a Recessed Fuel Cell Vent Assembly. I - Rear Wall Vent Tube Mounting. RM E8A27b, March 1948.

Ruggeri, Robert S.: Investigation of the Aerodynamic and Icing Characteristics of a Recessed Fuel Cell Vent Assembly. II - Ramp Floor Vent-Tube Mounting. RM E8B05a, March 1948.

Ruggeri, Robert S.: Investigation of the Aerodynamic and Icing Characteristics of a Recessed Fuel Cell Vent Assembly. III - NACA Flush-Inlet-Type Vent. RM E8C05, April 1948.

PROPULSION SYSTEMS (7.3.6)

Coles, Willard D.; Rollin, Vern G.; and Mulholland, Donald R.: Icing-Protection Requirements for Reciprocating-Engine Induction Systems. Rept. 982, 1950.

Noise

(7.4)

Hubbard, Harvey H. and Regier, Arthur A.: Free-Space Oscillating Pressures near the Tips of Rotating Propellers. Rept. 996, 1950.

Hubbard, Harvey H.: Sound Measurements for Five Shrouded Propellers at Static Conditions. TN 2024, April 1950.

Beraneck, Leo L.; Elwell, Fred S.; Roberts, John P.; and Taylor, C. Fayette: Experiments in External Noise Reduction of Light Airplanes. TN 2079, May 1950.

Hubbard, Harvey H. and Lassiter, Leslie W.: Sound from a Two-Blade Propeller at Supersonic Tip Speeds. RM L51C27, May 1951.

Vogeley, A. W.: Sound-Level Measurements of a Light Airplane Modified to Reduce Noise Reaching the Ground. Rept. 926, 1949.

Heating and Ventilating (7.5)

Stalder, J. R. and Wadleigh, K. R. :
A Preliminary Study of Ram-
Actuated Cooling Systems for
Supersonic Aircraft. RM A7C04,
April 1947.

Piloting Techniques (7.7)

Steiner, Roy: An Analysis of Airspeeds Attained by a Douglas DC-4 Airplane in Commercial Operations during the Early Months of 1947. RM L8K24, October 1949.

Faber, Stanley: Comparison of Effectiveness of Coordinated Turns and Level Sideslips for Correcting Lateral Displacement during Landing Approaches. RM L9I29, December 1949.

Bihrlé, William, Jr.: Floating Characteristics of Rudders and Elevators in Spinning Attitudes as Determined from Hinge-Moment-Coefficient Data with Application to Personal-Owner-Type Airplanes. TN 2016, January 1950.

Klinar, Walter J. and Wilson, Jack H.: Spin-Tunnel Investigation of the Effects of Mass and Dimensional Variations on the Spinning Characteristics of a Low-Wing Single-Vertical-Tail Model Typical of Personal-Owner Airplanes. TN 2352, May 1951.

Bihrlé, William, Jr.: Floating Characteristics of a Plain and a Horn-Balanced Rudder at Spinning Attitudes as Determined from Rotary Tests on a Model of a Typical Low-Wing Personal-Owner Airplane. TN 2359, May 1951.

Fire Hazards (7.9)

- Pesman, Gerard J.: Analysis of Multi-engine Transport Airplane Fire Records. RM E9J19, May 1950.
- Fryburg, George: Review of Literature Pertinent to Fire-Extinguishing Agents and to Basic Mechanisms Involved in Their Action. TN 2102, May 1950.
- Scull, Wilfred E.: Relation between Inflammables and Ignition Sources in Aircraft Environments. TN 2227, December 1950.
- Jackson, Joseph L.: Spontaneous Ignition Temperatures of Pure Hydrocarbons and Commercial Fluids. RM E50J10, December 1950.

INSTRUMENTS

(8)

Flight (8.1)

- Stivers, Louis S., Jr. and Adams, Charles N., Jr.: High-Speed Wind-Tunnel Investigation of the Effects of Compressibility on a Pitot-Static Tube. RM A7F12, August 1947.
- Huston, Wilber B.: Accuracy of Airspeed Measurements and Flight Calibration Procedures. Rept. 919, 1948.
- Curfman, Howard J., Jr. and Gardiner, Robert A.: Method for Determining the Frequency-Response Characteristics of an Element or System from the System Transient Output Response to a Known Input Function. Rept. 984, 1950.
- Zalovcik, John A.: A Radar Method of Calibrating Airspeed Installations on Airplanes in Maneuvers at High Altitudes and at Transonic and Supersonic Speeds. Rept. 985, 1950.
- Harris, Orville R.: Determination of the Rate of Roll of Pilotless Aircraft Research Models by Means of Polarized Radio Waves. TN 2023, February 1950.
- Zalovcik, John A.: A Method of Calibrating Airspeed Installations on Airplanes at Transonic and Supersonic Speeds by Use of Temperature Measurements. TN 2046, March 1950.
- Zalovcik, John A.: A Method of Calibrating Airspeed Installations on Airplanes at Transonic and Supersonic Speeds by Use of Accelerometer and Attitude-Angle Measurements. TN 2099, May 1950.
- Taback, Israel: The NACA Oil-Damped V-G Recorder. TN 2194, October 1950.
- Gracey, William; Coletti, Donald E.; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Supersonic Speeds. TN 2261, January 1951.
- Richardson, Norman R.: NACA VGH Recorder. TN 2265, February 1951.
- Cooper, Morton and Webster, Robert A.: The Use of an Uncalibrated Cone for Determination of Flow Angles and Mach Numbers at Supersonic Speeds. TN 2190, March 1951.
- Gracey, William and Scheithauer, Elwood F.: Flight Investigation of the Variation of Static-Pressure Error of a Static-Pressure Tube with Distance ahead of a Wing and a Fuselage. TN 2311, March 1951.
- Gracey, William; Letko, William; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Subsonic Speeds. TN 2331, April 1951.

Laboratory

(8.2)

- Cook, Harvey A.; Heinicke, Orville H.; and Haynie, William H.: Spark-Timing Control Based on Correlation of Maximum-Economy Spark Timing, Flame-Front Travel, and Cylinder Pressure Rise. Rept. 886, 1947.
- Cleaves, Alden P. and Carver, Mildred S.: Application of an Ultraviolet Spectrophotometric Method to the Estimation of Alkyl naphthalenes in 10 Experimental Jet-Propulsion Fuels. RM E6K08, April 1947.
- Gooderum, Paul B.; Wood, George P.; and Brevoort, Maurice J.: Investigation with an Interferometer of the Turbulent Mixing of a Free Supersonic Jet. Rept. 963, 1950.
- Curfman, Howard J., Jr. and Gardiner, Robert A.: Method for Determining the Frequency-Response Characteristics of an Element or System from the System Transient Output Response to a Known Input Function. Rept. 984, 1950.
- Rebeske, John J., Jr.: Investigation of an NACA High-Speed Strain-Gage Torquemeter. TN 2003, January 1950.
- Gardiner, Robert A.; Zarovsky, Jacob; and Ankenbruck, H. O.: An Investigation of the Stability of a System Composed of a Subsonic Canard Airframe and a Canted-Axis Gyroscope Automatic Pilot. TN 2004, January 1950.
- Rebeske, John J., Jr.: Investigation of an NACA High-Speed Optical Torquemeter. TN 2118, June 1950.
- Lowell, Herman H.: Design and Applications of Hot-Wire Anemometers for Steady-State Measurements at Transonic and Supersonic Airspeeds. TN 2117, July 1950.
- Taback, Israel: The NACA Oil-Damped V-G Recorder. TN 2194, October 1950.
- Scadron, Marvin D.; Gettelman, Clarence C.; and Pack, George J.: Performance of Three High-Recovery-Factor Thermocouple Probes for Room-Temperature Operation. RM E50I29, December 1950.
- Buchele, Donald R. and Day, Pierce B.: Interferometer with Large Working Field Utilizing Schlieren Optics. RM E50I27, January 1951.
- Tarr, Philip R.: Methods for Connection to Revolving Thermocouples. RM E50J23a, January 1951.
- Perkins, Porter J.: Flight Instrument for Measurement of Liquid-Water Content in Clouds at Temperatures above and below Freezing. RM E50J12a, March 1951.
- Jaffe, Leonard; Coss, Bert A.; and Daykin, Donald R.: An Electromagnetic Flowmeter for Rocket Research. RM E50L12, March 1951.
- Ekstein, Hans and Siegel, Stanley: Achromatization of Debye-Scherrer Lines. TN 2355, April 1951.

Meteorological

(8.3)

Thompson, J. K. and Lipscomb, V. W. :
An Evaluation of the Use of Ground
Radar for Avoiding Severe Turbu-
lence Associated with Thunder-
storms. TN 1960, October 1949.

Perkins, Porter J.: Flight Instrument
for Measurement of Liquid-Water
Content in Clouds at Temperatures
above and below Freezing. RM
E50J12a, March 1951.

RESEARCH EQUIPMENT AND TECHNIQUES

(9)

Equipment

(9.1)

Rebeske, John J., Jr.: Investigation of an NACA High-Speed Strain-Gage Torquemeter. TN 2003, January 1950.

Matthews, Clarence W.: The Design, Operation, and Uses of the Water Channel as an Instrument for the Investigation of Compressible-Flow Phenomena. TN 2008, January 1950.

Rebeske, John J., Jr.: Investigation of an NACA High-Speed Optical Torquemeter. TN 2118, June 1950.

Soule, Harold V. and Sabol, Alexander P.: Development and Preliminary Investigation of a Method of Obtaining Hypersonic Aerodynamic Data by Firing Models through Highly Cooled Gases. TN 2120, July 1950.

Stone, Ralph W., Jr.; Burk, Sanger M., Jr.; and Bihrle, William, Jr.: The Aerodynamic Forces and Moments on a 1/10-Scale Model of a Fighter Airplane in Spinning Attitudes as Measured on a Rotary Balance in the Langley 20-Foot Free-Spinning Tunnel. TN 2181, September 1950.

Turner, Howard L.: Measurement of the Moments of Inertia of an Airplane by a Simplified Method. TN 2201, October 1950.

Buchele, Donald R. and Day, Pierce B.: Interferometer with Large Working Field Utilizing Schlieren Optics. RM E50I27, January 1951.

Reynolds, Thaine W. and Sugimura, George H.: Evaluation of Packed Distillation Columns. I - Atmospheric Pressure. TN 2342, April 1951.

WIND TUNNELS

(9.1.1)

Dryden, Hugh L. and Abbott, Ira H.: The Design of Low-Turbulence Wind Tunnels. Rept. 940, 1949.

Schubauer, G. B. and Spangenberg, W. G.: Effect of Screens in Wide-Angle Diffusers. Rept. 949, 1949.

Gooderum, Paul B.; Wood, George P.; and Brevoort, Maurice J.: Investigation with an Interferometer of the Turbulent Mixing of a Free Supersonic Jet. Rept. 963, 1950.

Reid, Elliott G.: Annular-Jet Ejectors. TN 1949, November 1949.

Schubauer, G. B.; Spangenberg, W. G.; and Klebanoff, P. S.: Aerodynamic Characteristics of Damping Screens. TN 2001, January 1950.

Bidwell, Jerold M.: Analysis of an Induction Blowdown Supersonic Tunnel. TN 2040, April 1950.

McLellan, Charles H.; Williams, Thomas W.; and Bertram, Mitchel H.: Investigation of a Two-Step Nozzle in the Langley 11-Inch Hypersonic Tunnel. TN 2171, September 1950.

Lindsey, Walter F. and Chew, William L.: The Development and Performance of Two Small Tunnels Capable of Intermittent Operation at Mach Numbers between 0.4 and 4.0. TN 2189, September 1950.

Cohen, C. B. and Valerino, A. S.: Investigation of Operating Pressure Ratio of a Supersonic Wind Tunnel Utilizing Distributed Boundary-Layer Suction in Test Section. RM E50H04, November 1950.

Wind Tunnels (Cont.)

McLellan, Charles H.; Williams, Thomas W.; and Beckwith, Ivan E.: Investigation of the Flow through a Single-Stage Two-Dimensional Nozzle in the Langley 11-Inch Hypersonic Tunnel. TN 2223, December 1950.

Riegels, F.: Correction Factors for Wind Tunnels of Elliptic Section with Partly Open and Partly Closed Test Section. TM 1310, March 1951.

FREE-FLIGHT
(9.1.2)

Huston, Wilber B.: Accuracy of Airspeed Measurements and Flight Calibration Procedures. Rept. 919, 1948.

Kauffman, William M.; Liddell, Charles J., Jr.; Smith, Allan; and Van Dyke, Rudolph D., Jr.: An Apparatus for Varying Effective Dihedral in Flight with Application to a Study of Tolerable Dihedral on a Conventional Fighter Airplane. Rept. 948, 1949.

Zalovcik, John A.: A Radar Method of Calibrating Airspeed Installations on Airplanes in Maneuvers at High Altitudes and at Transonic and Supersonic Speeds. Rept. 985, 1950.

Harris, Orville R.: Determination of the Rate of Roll of Pilotless Aircraft Research Models by Means of Polarized Radio Waves. TN 2023, February 1950.

Zalovcik, John A.: A Method of Calibrating Airspeed Installations on Airplanes at Transonic and Supersonic Speeds by Use of Temperature Measurements. TN 2046, March 1950.

Zalovcik, John A.: A Method of Calibrating Airspeed Installations on Airplanes at Transonic and Supersonic Speeds by Use of Accelerometer and Attitude-Angle Measurements. TN 2099, May 1950.

Gracey, William; Coletti, Donald E.; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Supersonic Speeds. TN 2261, January 1951.

Cooper, Morton and Webster, Robert A.: The Use of an Uncalibrated Cone for Determination of Flow Angles and Mach Numbers at Supersonic Speeds. TN 2190, March 1951.

Gracey, William and Scheithauer, Elwood F.: Flight Investigation of the Variation of Static-Pressure Error of a Static-Pressure Tube with Distance ahead of a Wing and a Fuselage. TN 2311, March 1951.

Gracey, William; Letko, William; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Subsonic Speeds. TN 2331, April 1951.

TOWING TANKS AND
IMPACT BASINS
(9.1.3)

Benson, James M.; Havens, Robert F.; and Woodward, David R.: Landing Characteristics in Waves of Three Dynamic Models of Flying Boats. RM L6L13, May 1947.

PROPULSION RESEARCH
EQUIPMENT
(9.1.4)

Cook, Harvey A.; Heinicke, Orville H.; and Haynie, William H.: Spark-Timing Control Based on Correlation of Maximum-Economy Spark Timing, Flame-Front Travel, and Cylinder Pressure Rise. Rept. 886, 1947.

Propulsion Research Equipment (Cont.)

Blackshear, Perry L.: Sonic-Flow-Orifice Temperature Probe for High-Gas-Temperature Measurements. TN 2167, September 1950.

MATERIALS

(9.1.6)

Whitman, M. J.; Hall, R. W.; and Yaker, C.: Resistance of Six Cast High-Temperature Alloys to Cracking Caused by Thermal Shock. TN 2037, February 1950.

Marmo, Anthony B.: Multiple-Film Back-Reflection Camera for Atomic Strain Studies. TN 2224, November 1950.

Neurath, Peter W. and Koehler, J. S.: Creep of Lead at Various Temperatures. TN 2322, March 1951.

Smith, Frank C.; Howard, Darnley M.; Smith, Ira; and Harwell, Richard: Fatigue Testing Machine for Applying a Sequence of Loads of Two Amplitudes. TN 2327, March 1951.

Ekstein, Hans and Siegel, Stanley: Achromatization of Debye-Sherrer Lines. TN 2355, April 1951.

Technique (9.2)

- Phillips, William H.: Appreciation and Prediction of Flying Qualities. Rept. 927, 1949.
- Zalovcik, John A.: A Radar Method of Calibrating Airspeed Installations on Airplanes in Maneuvers at High Altitudes and at Transonic and Supersonic Speeds. Rept. 985, 1950.
- Press, Harry: The Application of the Statistical Theory of Extreme Values to Gust-Load Problems. Rept. 991, 1950.
- Zalovcik, John A.: A Method of Calibrating Airspeed Installations on Airplanes at Transonic and Supersonic Speeds by Use of Temperature Measurements. TN 2046, March 1950.
- Zalovcik, John A.: A Method of Calibrating Airspeed Installations on Airplanes at Transonic and Supersonic Speeds by Use of Accelerometer and Attitude-Angle Measurements. TN 2099, May 1950.
- Shames, Harold; Himmel, Seymour C.; and Blivas, Darnold: Frequency Response of Positive-Displacement Variable-Stroke Fuel Pump. TN 2109, June 1950.
- McLellan, Charles H.; Williams, Thomas W.; and Bertram, Mitchel H.: Investigation of a Two-Step Nozzle in the Langley 11-Inch Hypersonic Tunnel. TN 2171, September 1950.
- Turner, Howard L.: Measurement of the Moments of Inertia of an Airplane by a Simplified Method. TN 2201, October 1950.
- McLellan, Charles H.; Williams, Thomas W.; and Beckwith, Ivan E.: Investigation of the Flow through a Single-Stage Two-Dimensional Nozzle in the Langley 11-Inch Hypersonic Tunnel. TN 2223, December 1950.
- Taylor, Marion K.: A Balsa-Dust Technique for Air-Flow Visualization and Its Application to Flow through Model Helicopter Rotors in Static Thrust. TN 2220, November 1950.
- Marmo, Anthony B.: Multiple-Film Back-Reflection Camera for Atomic Strain Studies. TN 2224, November 1950.
- Sokolov, V. I.: Critical Velocities of Ultracentrifuges. TM 1272, March 1951.
- Ekstein, Hans and Siegel, Stanley: Achromatization of Debye-Scherrer Lines. TN 2355, April 1951.
- Rzhevkin, S. N.: Resonance Sound Absorber with Yielding Wall. TM 1273, May 1951.

CORRECTIONS

(9.2.1)

- Huston, Wilber B.: Accuracy of Airspeed Measurements and Flight Calibration Procedures. Rept. 919, 1948.
- Czarnecki, K. R. and Schueller, C. F.: Investigation of Interaction Effects Arising from Side-Wall Boundary Layers in Supersonic Wind-Tunnel Tests of Airfoils. RM L8G27, November 1948.
- Blue, Robert E.: Interferometer Corrections and Measurements of Laminar Boundary Layer in Supersonic Stream. TN 2110, June 1950.

Corrections (Cont.)

Dannenberg, Robert E.: Measurements of Section Characteristics of a 45° Swept Wing Spanning a Rectangular Low-Speed Wind Tunnel as Affected by the Tunnel Walls. TN 2160, August 1950.

Gracey, William; Coletti, Donald E.; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Supersonic Speeds. TN 2261, January 1951.

Perkins, Edward W.: Experimental Investigation of the Effects of Support Interference on the Drag of Bodies of Revolution at a Mach Number of 1.5. TN 2292, February 1951.

Gracey, William and Scheithauer, Elwood F.: Flight Investigation of the Variation of Static-Pressure Error of a Static-Pressure Tube with Distance ahead of a Wing and a Fuselage. TN 2311, March 1951.

Riegels, F.: Correction Factors for Wind Tunnels of Elliptic Section with Partly Open and Partly Closed Test Section. TM 1310, March 1951.

Gracey, William; Letko, William; and Russell, Walter R.: Wind-Tunnel Investigation of a Number of Total-Pressure Tubes at High Angles of Attack. Subsonic Speeds. TN 2331, April 1951.

Klunker, E. B. and Harder, Keith C.: On the Second-Order Tunnel-Wall-Constriction Corrections in Two-Dimensional Compressible Flow. TN 2350, April 1951.

AERODYNAMICS

(9.2.2)

Herriot, John G.: Blockage Corrections for Three-Dimensional-Flow Closed-Throat Wind Tunnels, with Consideration of the Effect of Compressibility. Rept. 995, 1950.

Vincenti, Walter G.: Comparison between Theory and Experiment for Wings at Supersonic Speeds. TN 2100, June 1950.

Hansen, Arthur G. and Yohner, Peggy L.: A Numerical Procedure for Designing Cascade Blades with Prescribed Velocity Distribution in Incompressible Flow. TN 2101, June 1950.

Berman, Theodore: Comparison of Model and Full-Scale Spin Test Results for 60 Airplane Designs. TN 2134, July 1950.

Stone, Ralph W., Jr.; Burk, Sanger M., Jr.; and Bihrlé, William, Jr.: The Aerodynamic Forces and Moments on a 1/10-Scale Model of a Fighter Airplane in Spinning Attitudes as Measured on a Rotary Balance in the Langley 20-Foot Free-Spinning Tunnel. TN 2181, September 1950.

Stalder, Jackson R. and Slack, Ellis G.: The Use of a Luminescent Lacquer for the Visual Indication of Boundary-Layer Transition. TN 2263, January 1951.

Benson, James M.: The Physical Properties of Active Nitrogen in Low-Density Flow. TN 2293, February 1951.

LOADS AND CONSTRUCTION

(9.2.4)

Smith, Frank C.; Howard, Darnley M.; Smith, Ira; and Harwell, Richard: Fatigue Testing Machine for Applying a Sequence of Loads of Two Amplitudes. TN 2327, March 1951.

OPERATING PROBLEMS

(9.2.6)

Rebeske, John J., Jr.; Parisen, Richard B.; and Schum, Harold J.: Investigation of Centrifugal Compressor Operated as a Centripetal Refrigeration Turbine. RM E50120, December 1950.

MATHEMATICS

(9.2.7)

Mazelsky, Bernard and Diederich, Franklin W.: Two Matrix Methods for Calculating Forcing Functions from Known Responses. TN 1965, October 1949.

Flügge-Lotz, I. and Klotter, K.: On the Motions of an Oscillating System under the Influence of Flip-Flop Controls. TM 1237, November 1949.

Curfman, Howard J., Jr and Gardiner, Robert A.: Method for Determining the Frequency-Response Characteristics of an Element or System from the System Transient Output Response to a Known Input Function. Rept. 984, 1950.

Gardiner, Robert A.; Zarovsky, Jacob; and Ankenbruck, H. O.: An Investigation of the Stability of a System Composed of a Subsonic Canard Airframe and a Canted-Axis Gyroscope Automatic Pilot. TN 2004, January 1950.

Sternfield, Leonard and Gates, Ordway B., Jr.: A Theoretical Analysis of the Effect of Time Lag in an Automatic Stabilization System on the Lateral Oscillatory Stability of an Airplane. TN 2005, January 1950.

Beckhardt, Arnold R.: A Theoretical Investigation of the Effect on the Lateral Oscillations of an Airplane of an Automatic Control Sensitive to Yawing Accelerations. TN 2006, January 1950.

Sternfield, Leonard: Some Effects of Nonlinear Variation in the Directional-Stability and Damping-in-Yawing Derivatives on the Lateral Stability of an Airplane. TN 2233, November 1950.

Schy, Albert A.: A Theoretical Analysis of the Effects of Fuel Motion on Airplane Dynamics. TN 2280, January 1951.

Gates, Ordway B., Jr. and Schy, Albert A.: A Theoretical Method of Determining the Control Gearing and Time Lag Necessary for a Specified Damping of an Aircraft Equipped with a Constant-Time-Lag Autopilot. TN 2307, March 1951.

Wang, Chi-Teh: Two-Dimensional Subsonic Compressible Flows past Arbitrary Bodies by the Variational Method. TN 2326, March 1951.

Donegan, James J. and Pearson, Henry A.: Matrix Method of Determining the Longitudinal-Stability Coefficients and Frequency Response of an Aircraft from Transient Flight Data. TN 2370, June 1951.

Smaus, Louis H. and Stewart, Elwood C.: Practical Methods of Calculation Involved in the Experimental Study of an Autopilot and the Autopilot-Aircraft Combination. TN 2373, June 1951.

BIBLIOGRAPHIES AND INDEXES**(11)**

Huston, Wilber B.: Accuracy of Airspeed Measurements and Flight Calibration Procedures. Rept. 919, 1948.

Weiss, Solomon and Pesman, Gerard J.: Bibliography of Unclassified Aircraft-Fire Literature. RM E9H03, November 1949.

TECHNICAL SUMMARIES

(12)

Toll, Thomas A.: Summary of Lateral Control Research. Rept. 868, 1947.

Cahill, Jones F.: Summary of Section Data on Trailing-Edge High-Lift Devices. Rept. 938, 1949.

Fryburg, George: Review of Literature Pertinent to Fire-Extinguishing Agents and to Basic Mechanisms Involved in Their Action. TN 2102, May 1950.

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